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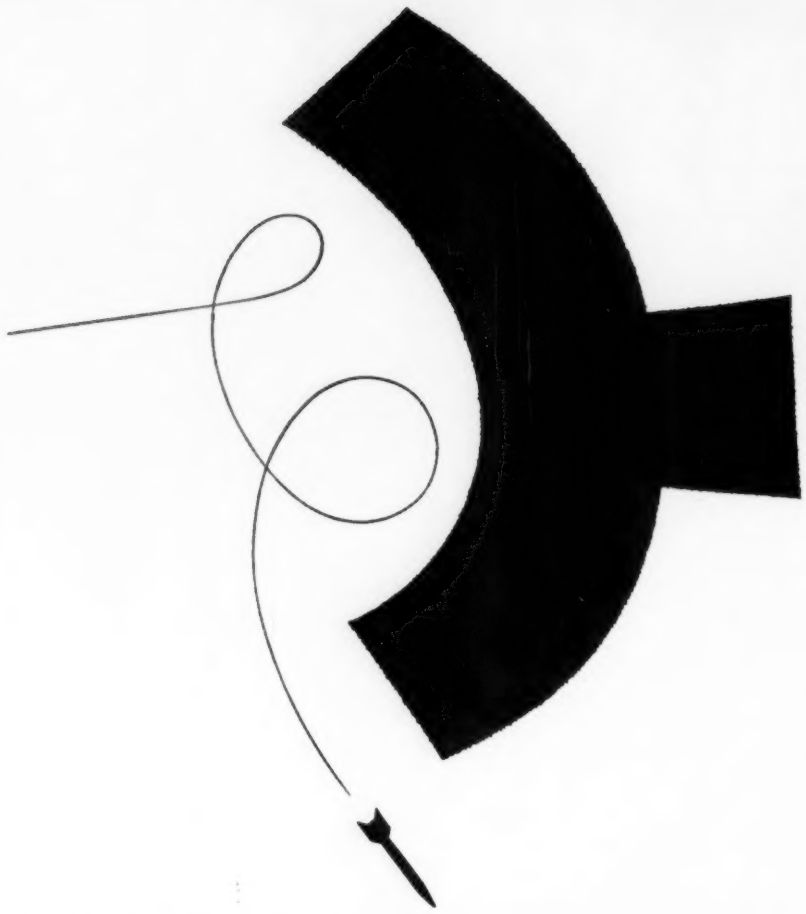

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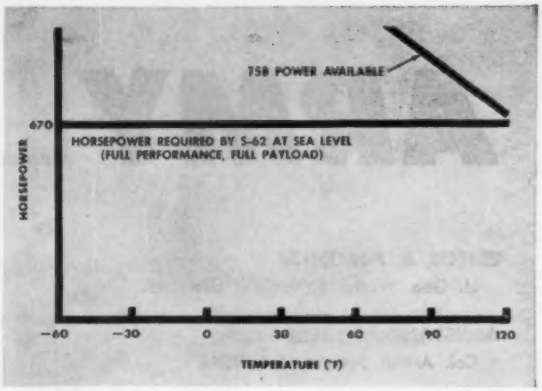

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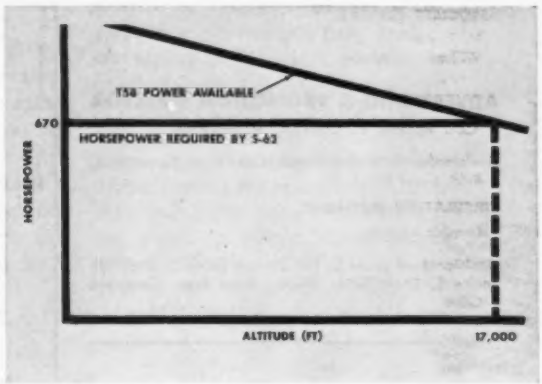

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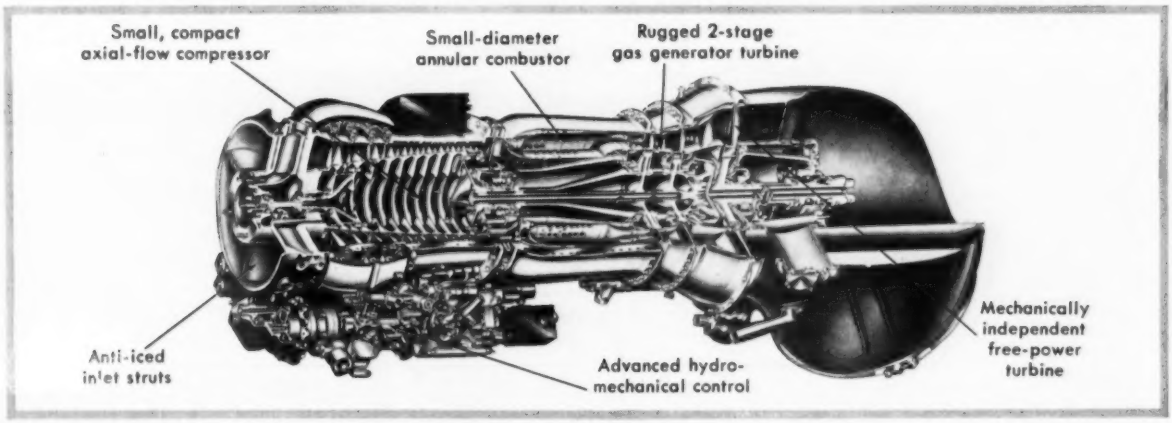

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Vol. 9 • No. 2 • September 1958

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Advance the status of the soldier's profession.

AUSA By Laws, Par. 13 Article II

THE CURRENT SCENE

What About Airlift? **22**

An Invitation to War ..... *Col. David L. Edwards* **25**

War and Space—and Policy. A review of General Gavin's book by *Brig. Gen. Thomas R. Phillips* **34**

TACTICS, TECHNIQUES & ADMINISTRATION

Squash on the Rock ..... *Lt. Col. Edward M. Flanagan, Jr.* **28**

Atomic Army Adjutant ..... *Col. Kenneth G. Wickham* **37**

From Miniaturization to Micro-Miniaturization *Brig. Gen. Earle F. Cook* **47**

LEADERSHIP & TRAINING

Voice of Experience ..... *J. B. Briscoe* **32**

Battle Drill During Basic Training *Brig. Gen. Morris O. Edwards* **40**

CEREBRATIONS

Ad Libs of War ..... *SFC Forrest K. Kleinman* **50**

Bring Back the Brevet ..... *Lt. Col. H. P. Rand* **51**

GOER Decon Team *Lt. Col. Gregg L. McKee and Capt. George F. Carroll* **52**

DEPARTMENTS

The Month's Mail **6**

Front & Center **10**

The Army's Month **16**

Irons in the Fire **54**

The Month's Books **56**

AUSA Activities **61**

THE MONTH'S COVER

Artist Tom Hickson stresses the importance of global air mobility for Army forces. "See What About Airlift?", page 22.

ARMY is published monthly by the Association of the United States Army. Publication date: 25th of preceding month. Publication, Editorial and Executive Offices: 1529 Eighteenth Street, N.W., Washington 6, D. C.

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Entered as Second Class Matter at Washington, D. C., additional entry at Richmond, Va., under the Act of March 3, 1879.

Articles appearing in *ARMY* do not necessarily reflect the opinions of the officers, or members of the Council of Trustees of the Association of the U. S. Army, or the editors.

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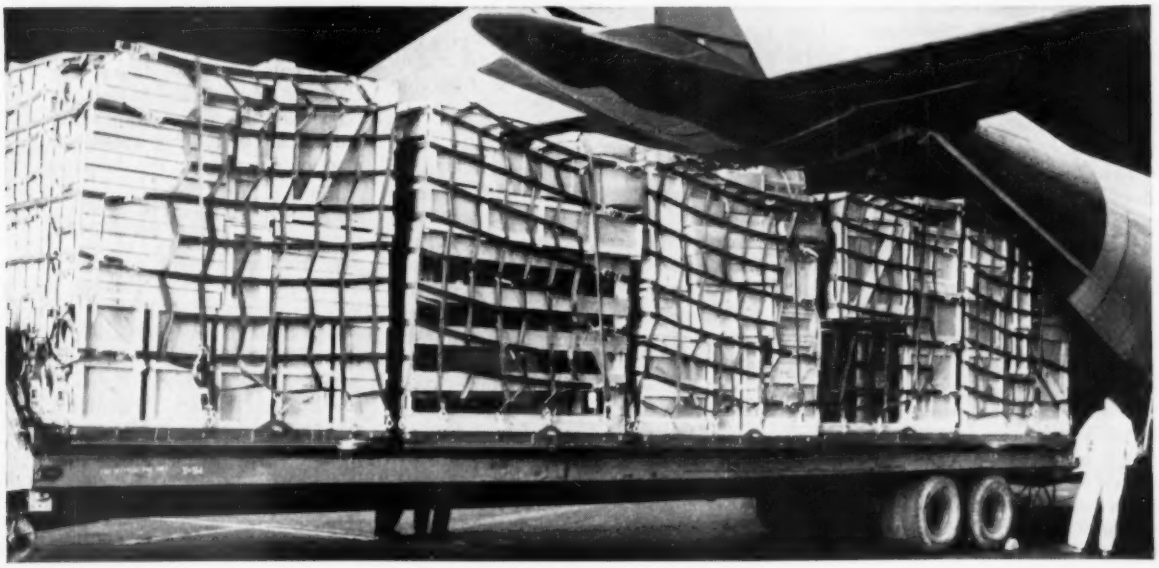


THE MONTH'S MAIL

Comments on July issue

● This is to let you know how pleased I was with the July issue. I was even more pleased by the astuteness and critical analysis of the officers who wrote the letters and articles in it. "Doctrine Must Allocate Means" by Lt. Col. Thomas S. Jones is a most discerning piece of thinking, as was Major Christy's article "To March, To Shoot and To Live Meanly." In our ever constant reorganizations and development of hardware we often lose sight of the value of past experience. All too often past mistakes must be examined anew.

"The Mortain Counterattack" was fine. General Jones's article on the decisions of the Court of Military Appeals was very enlightening, although I did not remain as objective in my thinking as the author certainly was.

It is very gratifying to know that such capable thinkers are members of our officer corps. For people much taken with reorganizing the Army, I would recommend chapter 24 of General Sherman's memoirs. This is a wonderful commentary on the lessons of the Civil War, which I found to be modern in thought and very applicable to present-day problems.

It might be the season, the water, or the bourbon, but I thought I would throw a bouquet your way.

LT. ROBERT CEDER
Indianapolis, Ind.

● In "To March, To Shoot and To Live Meanly," in the July issue, Major Christy, in discussing over-mechanization, says: "I see some danger in this. A specific example is the M48 medium tank. This tank is equipped with a 90mm high-velocity gun which fires a projectile through a very flat trajectory. In traveling a distance of 5,000 yards this projectile rises scarcely more than the height of an average man at the highest point in its arc of flight. This would seem to imply that at average tank ranges of 2,000 yards or less it is necessary only to align the tube on the center of a man-size target in order to get a hit."

If Major Christy knows a better way to get a first-round hit, we're interested, but it isn't as simple as he thinks. He should take a closer look at Firing Tables 90-N-1 (28 June 1957) which has data on the 90mm gun, M41, when mounted on the M48 tank. Pages 14 and 15 show that our standard shot round, the M318-A1, has a maximum ordinate of 181 feet at a range of 5,000 yards. Even at a range of 2,000, the maximum ordinate is 20 feet.

CAPT. PAUL M. CROSBY
Weapons Dept, Armor School
Fort Knox, Ky.

● Though I agree with Major Christy's over-all thesis, I believe some of his data in support of it can be very misleading.

"Fewer than fifteen per cent of our casualties in World War II were caused by small arms." The boast once was that the American rifleman was the world's best. Whether that is still true we don't know, but the fact remains that the figures quoted measure the relative efficiency of *enemy* small arms. We need some comparable enemy casualty figures if we are to keep our thinking sound.

"Estimates by the Army's Operations Research Office on the number of rounds of small-arms ammunition fired to effect one casualty vary from two thousand to fifty thousand for different campaigns of that war." Much small-arms ammunition is fired through automatic weapons on interdictory missions which are intended to have only a contingent casualty effect. The raw figures on the consumption of small-arms ammunition need quite a lot of working over before we can get down to the relative efficiency of aimed fire by the individual rifleman.

This is not intended as an argument about weapons or tactics. It is a plea that we examine statistics to see what they really mean before we try to draw conclusions from them.

T. L. GUNTHORP
Cape May Point, N. J.

● I cannot agree with Major Christy's statement that the M48's 90mm gun shoots so flat that the range-finder sight for it is "an example of unnecessary over-mechanization."

A little study of ballistics tables will prove otherwise. The 90mm with 25-pound projectile at 4,800 fs muzzle velocity has a maximum ordinate many times the height of a man when the range is 5,000 yards. The Infantry School's Weapons Department says the high point is more than 100 feet.

Keeping new developments in mind, tanks may soon successfully engage targets out to very long ranges—ranges at which trajectories are even more rainbow-like. Our gunners can ill afford to disregard precise range determination. Thus, the range finder is a very useful and desirable piece of equipment. Perhaps it would be better to point out not that the range finder is unnecessary, but that it should not become the master of the gunner. Training of gunners should be varied to make them proficient in quickly engaging targets at ranges obviously within "point blank" of the 90mm gun.

I felt that the rest of Major Christy's article was excellent. His comments on automatic fire, physical preparedness, logistical independence, and the opening of the arms room to make riflemen of our soldiers was refreshing. I hope we may see more such articles.

JOHN L. HOFUES
USA Inf School
Fort Benning, Ga.

● At the moment the Middle East fuss underscores Major Christy's complaint on our gas-eating vehicles. When one hostile hand can shut off the fuel flow from the Middle East to Europe, the Western Hemisphere may have to take up the slack. This may also mean that the Detroit dinosaur is doomed to extinction. Who wants ton-miles when he gets only a few gallons to travel on?

As for marching, a recent college experiment with a new type of pack was also used to check physical fitness. It was learned that a few moderate marches of less than ten miles raised the fitness index of students. Could we drop a few of the elaborate gimmicks and go walking? Some people also think a speed march means a four-minute mile. This would give them more chance to learn the difference.

Major Christy mentioned the 1,000-yard matches at Camp Perry. I have been there, and do not urge this as a replacement for the machine gun and mortar. There are times when someone will be in a position to let off a few at a careless enemy squad or larger formation. He may address it To Whom It May Concern, but so long as he gets someone's number, it will harass the rest. Incidentally, a few years back one of our soldiers fired a 12V possible in the Wimbledon Cup, good for first place with the service rifle. He no doubt used an "accurized" rifle. How about a drive to teach unit and direct-support armorers how to select rifles and

how to improve accuracy? This might result in better scores in peace, and deader foes in war.

Over-mechanizing resulted in such things as the heavier M series trucks, about which the airborne people howled loud and long. It is not only the fancy thing that works. The desert campaigns of World War I brought out the dope from British sources that the only cars worth a hoot for desert war were the finely built Rolls-Royce and the rattletrap Model T Ford. The Rolls lasted forever and the T-bone could be stripped to the chassis by any intelligent camel driver. The Russians operate on this idea. Fine work where necessary, rough stuff where not. Look over a Red burp gun some time.

Captain Gower's battle jacket turned up in Normandy fourteen years ago. I found one, and it looked fairly good to me. It was a vest-type pack with large and small pockets and eyelets for canteen and other gear. Let's hear from someone who has first-hand knowledge of how it worked. The Gower jacket goes a bit farther. It sounds good, but wouldn't the pockets on the front interfere with crawling?

The ribbons for command duty sound promising. I would suggest an Aspirin Cluster for training center duty, and some colorful device for MAAG work, such as a Kinchi crock for KMAG, for instance.

As for the early comment on the "Tritomic" Reserve division, whatever became of the stress on standardization of units? Guard and USAR units followed the twists and turns of the military set-up from squares to triangulars, and now what? How did they suddenly lose their ability to conform? Why can't a state that now has a standard division and an RCT, plus assorted odd units, support a Pentomic division? Where are these phantom brigadiers going to spring from when a fuss starts? From the same place the recruit sentry got his torpedo for the OD's battleship?

WO JOHN P. CONLON
Newark, Ohio

Anti-antimissile Missiles

● When I read "Good Sense in Antimissile Development" in the July issue the most ridiculous thought struck me.

If you can make an antimissile missile then you can make an anti-antimissile missile, and an anti-anti-antimissile missile, ad infinitum. So if you want to get a missile with a payload to a target, you accompany it with an anti-antimissile missile to knock out the antimissile missile of the defender. So the defender just shoots up more antimissile missiles, and if he runs out of targets both sides turn on each other and destroy themselves. If the number is uneven, there would remain a very frustrated antimissile missile.

I foresaw that after a few futile attempts at getting a payload through, both sides put all their nuclear devices into all their ICBMs, fired them and all their antimissile missiles in one great effort. The Earth was treated to the largest Fourth of July display ever seen. Picture a long line of dominoes standing on edge and being pushed from both ends. Only one missile with a payload got through from each side. The Russian missile hit the Pentagon and our missile hit the Kremlin, and we all lived happily ever after.

CAPT. DONALD R. FISCHER
Vineland, N. J.

Armed to Fight Anywhere

● The controversy which has waxed in ARMY recently over the merits and deficiencies of the currently authorized weapons for the infantry battle group has brought forth a good deal of light as well as heat. An interested observer with some background in the subject is led to the almost inevitable conclusion that both sides are right.

That is, while the battle group should have its present support weapons which can be hand-carried over many types of terrain only with utmost difficulty, it should also have some of the older and lighter variety which can be taken by hand over goat paths or through jungles.

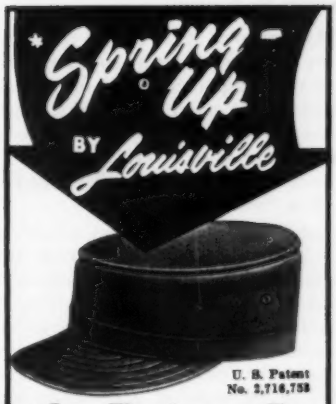
Each battle group should have both types of weapons and should be trained and organized to fight with either. The day may come, though it is not yet here, when we will have weapons as light as the 60mm mortar, say, with the punch of much bigger mortars.

When that day comes we can revert to a single weapons system concept for all infantry battle groups. But today those units in place in prospective theaters of operations should be equipped with the weapons, be they small or large, most useful in the terrain conditions they face, even should they also have the other set readily available in division trains in case of a rapid shift of scene.

STRAC, however, must be prepared to fight anywhere at any time, and every STRAC battle group should be equipped with weapons useful and usable in any potential theater. This need not entail great extra costs, as we still have quite a useful stockpile of the older and lighter weapons which can be more easily manhandled. The real obstacle is a state of mind committed to only one weapons system for all types of terrain.

It should be simple enough to work up the TOE in the alternative. Label them A and B, with equipment A or B always in the hands of the troops, the alternate set in the division trains for rapid issue as the tactical situation might demand.

MAJ. IRVIN M. KENT
APO 58, N. Y. C.



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Stimulus to Students

● My staff joins me in sincere congratulations on the consistently superior quality of your output. Speaking for myself, and bearing in mind the military magazines—domestic and foreign—that I have been reading since 1911, I am glad to say that in my opinion you have hit the top. Stay there.

Your June issue carries an article by Col. Walter E. Kraus ["Bridging the Linguistic Gap"] that is of particular interest to us . . . [and should] serve as a positive stimulus to students if distributed in the right spots. I request authority to reprint the article for such distribution, including the standard acknowledgment to ARMY and the author. I have mailed a similar request to Colonel Kraus.

BRIG. GEN. HERMAN BEUKEMA
USA, Retired

APO 403, N. Y. C.

● *We were glad to comply with this request, and trust General Beukema's plan succeeds. As servicemen returning from Europe know, General Beukema is Director of the European Division of the University of Maryland's Overseas Program. And as many graying graduates of USMA know, for many years General Beukema headed West Point's Department of Economics, Government and History.*

Note on a Book Review

● Having lived for three years on a periphery closer to the Arab-Israeli problem than Washington—in Ankara—I was dismayed by the tone of the review given Lt. Gen. Sir John Bagot Glubb's *A Soldier with the Arabs*, by Lt. Col. H. A. DeWeerd [ARMY, June 1958]. There is so much glib and inaccurate reporting on the Middle East, and Colonel DeWeerd, I fear, has added his bit, to the possible confusion of your readers. I have therefore sought an independent opinion on the review—and here it is.

COL. C. M. PEEKE
Fort Smith, Ark.

● *Colonel Peake's inclosure follows:*

● I have read Colonel DeWeerd's review of Glubb's book and also I have read General Glubb's book. Reading the former does very little in introducing the subject of the latter. The review dismisses Glubb with some well-placed adjectives: "Glubb offers this kind of Sunday School advice." Obviously this is a derogatory use of the type of advice. "He moved like a Salvation Army captain among a gang of assassins." "His identification with the Arab cause colors all his statements." Such remarks indicate a lack of understanding of General Glubb. The book itself shows Glubb identified himself first and at all times as a servant of Great Britain. It was his responsibility to maintain Jordan as a British base by operating the Arab Legion as a local security force. When the tides of Arab nationalism made it clear that the interests of Great Britain and those of the Arabs had diverged, Glubb had to go.

Colonel DeWeerd accuses General Glubb of being pro-Arab and then ridicules some of his conclusions. In referring to the incident of the murders at the Scorpion Pass, Glubb is quoted as insisting that the perpetrators were not Jordanian Arabs. DeWeerd comments, "Who but Glubb could expect his reader to 'buy' words of this sort?" The reviewer seems to be able to solve this who-done-it by dogma. Yet there is documentary material on this affair. There are several long reports by United Nations observers on the spot which give details. They agree with General Glubb. There is also a long discussion in the chapter "The Scorpion Pass Bus Incident" of *Violent Truce*, by Commander Elmo Hutchinson, USN. Hutchinson described the efforts of UN observers to trace the murderers who appear to have been segments of the Azzazzma or Tarabin tribes living partially in Israel. Finally, Henry Kern of *Newsweek*, who was in Israel at the time, reported that the search for the murderers had shifted from Jordan to the Arab tribes in the Israeli section of Sinai. These all substantiate Glubb's opinion.

The reviewer indulges in the common fallacy of first attaching a label of his own manufacture, thus drawing his own conclusions based on his label. General Glubb is a product of British Colonial and Mandatory policies, and his character, with all its virtues and vices, should be interpreted in that light.

EDWIN M. WRIGHT
Washington, D. C.

● *Mr. Wright, lecturer on the Middle East at the Johns Hopkins University, lived thirty-four years in the Middle East. He reviewed* Defense of the Middle East *in our August issue.*

Business Has Paper Troubles?

● The article in the July issue, "How to Get Out from Under the Paper" [by Capt. Donald R. Fischer], has aroused considerable interest here at Motorola. Accordingly, we would like to know if you can supply reprints.

Alternatively, we would like to have your permission to reproduce the article for internal company distribution.

JOHN F. BUCKLEY
Advertising & Public
Relations Dept., Motorola Inc.
Phoenix, Ariz.

● *No reprints are available but we were happy to grant this request.*

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The Business of Versatile Helicopters . . .

One of the primary objectives of the Army's growing aviation program is to execute its many aerial missions with the *fewest possible aircraft types*. The necessity of this consolidation in terms of logistics and over-all economy is underlined by the continual increase in the number of missions to be tackled on the nuclear battlefield.

The Army's **H-23D "Raven"** meets that multi-mission requirement in the light helicopter category. Its versatility is attained by a performance, a load and space capacity, and a ruggedness to perform its tasks without compromises or limitations.

Hiller has now applied a new 305 hp engine to the basic H-23D ship. The resulting 12E aircraft—the most powerful in the two to four place class—is prepared to capture a whole new order of missions, many of them not previously considered within the realm of light helicopters.

HILLER AIRCRAFT CORPORATION
PALO ALTO, CALIFORNIA — WASHINGTON, D.C.

FRONT AND CENTER

The Infantry School at Fort Benning will hold its first Infantry conference since 1946 at Fort Benning during 2-5 December of this year. Some two hundred senior American infantrymen from all over the world will attend and the school's Commandant, Major General Paul Freeman, is planning a program that will be as fully productive as the justly famous post-World War II conference.

* * *

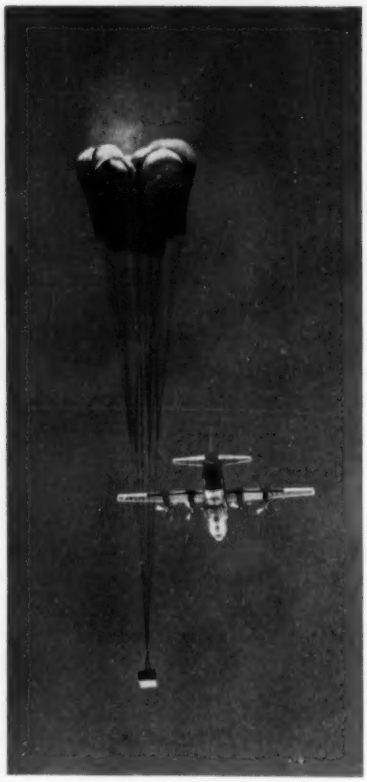
The Army Research Office (ARO) which was established in March at Fort Belvoir has been moved to Arlington Hall Station which is closer to the Pentagon. The ARO which coordinates all of the Army's research activities is a part of the Office of the Chief of Research and Development of the Army staff. ARO does not direct actual research projects, these continue to be handled by the technical services of the Army. However ARO does provide centralized planning and coordination between the technical services, especially in research activities that cut across technical service lines. ARO is presently concerned with two thousand research tasks and its staff includes fifty-seven persons, most of them civilian or military scientists.

* * *

DoD has requested Selective Service to call up 11,000 men during September for assignment to the Army. Navy, Marine Corps and Air Force have placed no calls with Selective Service for September.

* * *

Headquarters, CONARC, has scheduled a series of Fiscal Year 1959 field exercises to test mobility and operational readiness of STRAC. Exercise Dark Cloud at Fort Campbell in November will provide combined unit training for 101st Airborne Division. Meanwhile, Army-Navy amphibious exercise Rocky Shoals will be conducted by elements of the 4th Infantry Division 2-11 Nov. near San Simeon, Calif. Exercise Banyan Tree in Jan. 1959 will see one battle group of the 82d Airborne Division moving by air to Panama, where the men will participate in a jungle warfare exercise. During Exercise Caribou Creek in Jan.-Feb. 1959, one 1600-man battle group of the 82d Airborne Division will be airlifted to Alaska in an exercise emphasizing Arctic tactics and techniques STRAC-EX in Feb. 1959 will involve airlift of an advance STRAC command and communications group to Europe to demonstrate capabilities for speedy deployment. Operational readiness of the 4th Infantry Division will be tested in Exercise Dry Hills in May 1959, to include an airlift of one battle group from Fort Lewis to the Yakima Maneuver Area.



The "box" that seems to be holding up the six unfolding parachutes is a 2½-ton truck that has been dropped from the rear of the Lockheed C-130. When the chutes opened the truck was lowered safely to the ground. These were Quartermaster Corps tests at Yuma, Ariz.

Uniform foreign duty tours for persons serving in more than 100 overseas areas were approved, effective 1 July. In general, the standard pattern of the new tour calls for 36-month service for persons accompanied by their dependents in more favorable areas, and 24-month tours for those not so accompanied. In overseas areas where living conditions for servicemen and their families are less favorable, shorter tours have been established.

* * *

The Army National Guard became a full-time partner in the nation's missile defense early this month when selected units in California took over Nike-Ajax sites from the Active Army. The changeover marks the beginning of a new era for the Guard in manning defense installations. In addition, units are scheduled for conversion in Connecticut, Illinois, Maryland, Massachusetts, Michigan, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Virginia, Washington, Wisconsin and the District of Columbia. Secretary of the Army Brucker, in announcing the move, said "The National Guard will become our first reserve component to be given an active role in surface-to-air-missiles."

* * *

Twenty-eight outstanding specialists in such critical fields as mathematics, physics, hydrology, guided missiles, and chemistry, have been recommended for Regular Army appointment under "Project 200." The program was a "one shot" affair, under which the Regular Army Specialist Appointment Board selected the individuals only after carefully screening their academic backgrounds and experience in fields of specialization.

* * *

In its first year of operation, the MEDICARE program has provided a large number of servicemen's dependents with medical care they might otherwise not have received, according to DoD. Admissions of dependents to civilian hospitals totalled more than 125,000 the first year. About 3 million

(Continued on page 14)

THE MAN BEHIND THE GREASEGUN . . . The exploits of the fliers and aircraft that are keeping our nation secure can not be written without proper credit to the unheralded man behind the greasegun. He is a member of a maintenance crew . . . a crew chief . . . a plane captain who is content to enjoy the reflected glory of his ship. Something of him flies with every aircraft, and when ship and crew return safely he knows his job has been well done. For he knows that nothing could fly, no pilot could climb aboard without his contribution. Kaman Aircraft recognizes the job these men are doing and gives them a tangible salute by designing helicopters which require minimum maintenance and make the man behind the greasegun whistle while he works.

THE *KAMAN* AIRCRAFT CORPORATION

PIONEERS IN TURBINE POWERED HELICOPTERS

BLOOMFIELD, CONNECTICUT

NUCLEAR DIVISION • ALBUQUERQUE, NEW MEXICO

1958 annual meeting

Sheraton-Park Hotel
Washington, D. C.
October 20 • 21 • 22

HOTEL RESERVATIONS

Requests for hotel reservations must be made *directly* to the Sheraton-Park Hotel, Washington 8, D. C.

Sheraton-Park Rates

Single with Bath:	$8.50 to $16.00
Twin with Bath:	$12.50 to $20.00
2-Room Suites:	$17.00 to $37.00
3-Room Suites:	$45.00 to $65.00

Special military rates are available upon request to those in uniform or presenting active-duty ID cards when checking in.

MILITARY QUARTERS RESERVATIONS

BOQ and enlisted military quarters are available to military personnel. Persons desiring such quarters should submit requests by 8 October 1958 to: Headquarters, Military District of Washington, Att: Billeting Officer, Washington 25, D. C.

ADVANCE REGISTRATION INFORMATION

Members of AUSA may register in advance for the Annual Meeting between the dates of 10 August and 10 October.

Requests for advance registration will be accepted from MEMBERS ONLY.

AUSA cannot accept requests for hotel or military billet reservations. See opposite page for instructions regarding billeting requests.

The prices for registration and tickets to the social functions are listed on the coupon at the bottom of the page. Military personnel and Department of Defense civilians are eligible to register and purchase tickets to the social functions at the military rate.

Registrants may bring guests, including ladies, to the luncheon on 21 October and to the annual banquet on 22 October. Registrants may NOT bring guests to the reception on 20 October. **All tickets purchased for guests will be sold at the civilian rate.**

Advance registration and ticket purchases will be confirmed by mail. Registration badges, tickets, and other materials may be picked up at the AUSA Registration Desk in the lobby of the Sheraton-Park Hotel after 1200 hrs., 19 October 1958.

Refunds cannot be made for advance registration and advance ticket purchases unless the cancellation is received prior to 19 October.

Please indicate on the coupon below the category of your registration and the number of tickets desired for each event. Full payment for your registration and tickets requested must accompany your advance registration application. Checks should be made payable to the Association of the U. S. Army. **Remember, tickets for guests are sold at the civilian rate.**

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Enclosed please find $_____ in full payment of my registration ($1.00-$3.00) for the Annual Meeting and for tickets indicated below:

Function	*Quantity Desired*	*Unit Price* Mil.*	Civ.	*Amount*
Registration	_____	$1.00	$ 3.00	_____
Reception	_____	2.50	3.50	_____
Luncheon	_____	4.00	5.00	_____
Banquet	_____	7.50	10.00	_____
AUSA Membership	_____	5.00	5.00	_____

*Includes Department of Defense civilians.

NAME (print or type) _____ RANK _____

ADDRESS _____
(street) (city) (state)

FULL PAYMENT MUST ACCOMPANY THIS APPLICATION

The 50-meter slow-fire pistol team: *(kneeling, l. to r.)* M/Sgt. Roy L. Sutherland and SFC William B. Blankenship; *(standing, l. to r.)* Coach Maj. Benjamin C. Curtis, Lt. David C. Miller, SFC Nelson H. Lincoln, and CWO Victor E. Maass. CWO Offutt Pinion was not present when picture was taken.

Army Dominates U. S. Shooting Team

The 1958 U. S. shooting team which represented the Nation at the International Shooting Union's 37th World Championship in Moscow in August owes much of its success to the Army's Advanced Marksmanship Unit (AMU) at Fort Benning.

The Army dominated the twenty-four-man team, with fourteen AMU members, plus one other Regular soldier and an Army reservist. Five of the Army AMU shooters qualified for two different shooting teams.

The team was rounded out by four Marine Corps, one Navy, and three civilian marksmen.

Of the five different shooting teams, the Army placed five of the six members on the slow-fire pistol team; four of the five on the rapid-fire pistol team; five of the six on the small-bore rifle team; two of the four on the "running deer" target team; and five of the eight on the free-rifle team.

The 50-meter small bore rifle team: *(kneeling, l. to r.)* Lt. John C. Herr, Gordon J. Taras, Lt. Verle F. Wright; *(standing, l. to r.)* Lt. James A. Eberwine, Lt. Daniel B. Puckel, and Lt. James S. Carter

(Continued from page 10)

dependents are eligible for MEDICARE, the great majority of them in the U. S.

* * *

The Army's Foreign Area Training Program offers qualified officers a year's post-graduate schooling at Army Language School, plus ten months education at a leading civilian university, followed by one-and-a-half to three years specialized training in an overseas area. Prerequisites for this training are outlined in AR 350-23.

* * *

The President's Safety Award for the best all-around record in 1957 in safeguarding employees against injury has been presented to the Department of the Army. The awards are given annually to two federal agencies—above and below the 50,000-employee level—for safety accomplishment for federal employees.

* * *

Veterans may now obtain all their military service medals by making one simple informal request of the proper authorities without documenting their right to the medals. In response to a written request stating, "send all medals to which I am entitled," or similar words, the proper wheels will turn and the awards spew out. Veterans must give full name, service number, current address and dates of service. Army veterans should write the Commanding Officer, Army Records Center TAGO, 9700 Page Blvd., St. Louis 14, Mo.

* * *

The Army's need of the support of U. S. industry in research was stressed by Lt. Gen. Arthur G. Trudeau, Chief of Army R&D, at a meeting in Schenectady in July. Gen. Trudeau, during an address before a Second Army-General Electric Corp. Research Conference, made his plea for industry to apply its laboratories and scientific talent to the solution of vital Army research problems. A bold look, he said, is required to: undertake exploratory problems of a very basic scientific nature, drop programs when scientific data indicate they will not yield the desired results, and convert research and development projects into production quickly when success demonstrates their usefulness. The Army, he stated, is conducting extensive programs in basic science, equipment and human resources in direct support of Army needs, and research connected with missiles, satellites, and space projects.

Strategic Army Corps personnel, such as these paratroops of the famed 82nd Airborne Division, get intensive and varied training to keep them ready for action anywhere in the world.

U. S. ARMY PHOTO

STRAC—a new power for peace

"If all-out war becomes our only counter to aggression, the Soviet Union may be enabled to use its strategic striking force as a shield behind which to achieve limited advances, confronting us in each case with the alternative of yielding to what will seem a marginal Soviet gain or of precipitating a world-wide holocaust." — The Rockefeller Report on International Security, January 1958.

Since World War II, there have been well over a dozen such limited wars in various sectors of the globe.

The U.S. Army has specially organized its new Strategic Army Corps to help discourage local aggressions or stop them promptly and decisively, if called upon to do so. STRAC is a force of four crack airborne and infantry divisions. This hard core of your modern Army is constantly ready for air and sea movement to any trouble spot in the world.

General Electric is proud to be a supplier of electronic systems that help STRAC live up to its motto — "Skilled, Tough Ready Around the Clock".

Progress Is Our Most Important Product

GENERAL ELECTRIC

HEAVY MILITARY ELECTRONIC EQUIPMENT DEPARTMENT
SYRACUSE, NEW YORK

This public information message also appears in the current issue of HARPER'S Magazine.

THE ARMY'S MONTH

The Senate of the U. S. debates Army needs

FOR the first time in many years the Senate of the United States debated vigorously and at considerable length the requirements of the Army before voting on the defense budget for Fiscal Year 1959.

This is gratifying. It demonstrates that the nation is slowly awakening to the problems of the Army and is beginning to take a more realistic view of the requirements of limited war. The question debated was how to sustain STRAC's strength by giving it more modern weapons and equipment, by improving its logistics, and by providing it with strategic and tactical mobility.

All of this came out during the Senate debate, but before getting into that we should like to quote a few sentences from a series of very perceptive articles on American defense policies and efforts written by the military correspondent of the *London Times* following an extensive visit to these shores.

"There is no dogmatism in the [U. S.] Army about whether limited wars would be fought conventionally or with atomic weapons," he wrote. "Instead, the emphasis is placed on using the most effective means for the particular situation." But, he went on, "the one thing the Army is dogmatic about is that speed of reaction will be a key factor in coping with any brushfire war."

That says it well and that is what Senator Symington was talking about in the Senate debate.

Said Senator Symington:

"The Army needs, and needs very badly, 108 mechanized flamethrowers, plus 120 self-propelled mortars. . . . The Army is not equipped with the modern transistorized lightweight communication equipment that science has produced. . . .

"In this atomic age, no pentomic division army could long exist on any battlefield without mobility and modern support equipment, items which are easy to neglect, because they are the unglamorous; such items as bridge equipment, pontoons, water purifiers and the method and means of transport and supplies.

"Think of it—the Army of the United States moving into Lebanon and supporting our British allies in Jordan with old tin cans used fourteen years ago.

* * *

"Picture the waste in such an operation in man-hours alone.

"Bridging equipment in our Army is still of the World War II variety, with heavy steel composition; and our pontoons are wooden assault boats.

"The Army earnestly desires modern light-weight aluminum and plastic pontoons and bridging equipment.

"Both the Soviets and some of our allies have such equipment now.

"About $15 million is needed for this latter equipment.

"In this day of atomic fallout, water-purification systems have become a vital item on the atomic battlefield. But the American Army is still using its World War II purification sets.

"New mobile equipment is available. The Army desires 375 such sets. They would cost $10 million—the cost of one modern plane.

"These are but a few of the relatively unglamorous items the Army is so badly in need of.

"In committee, after careful study, as previously mentioned, I urged $693 million for research and development and overall Army modernization.

"This amount was rejected."

Inability to fight brushfire wars

To all this could be added a much graver indictment—detailing the appalling slow down in scheduling production of modern rifles and machine guns, weapons carriers and trucks—even of those glamorous weapons—missiles—of tactical ranges, such as Little John, Honest John, Lacrosse and Hawk.

But to return to the debate, read here a colloquy between Senator Clark and Senator Symington:

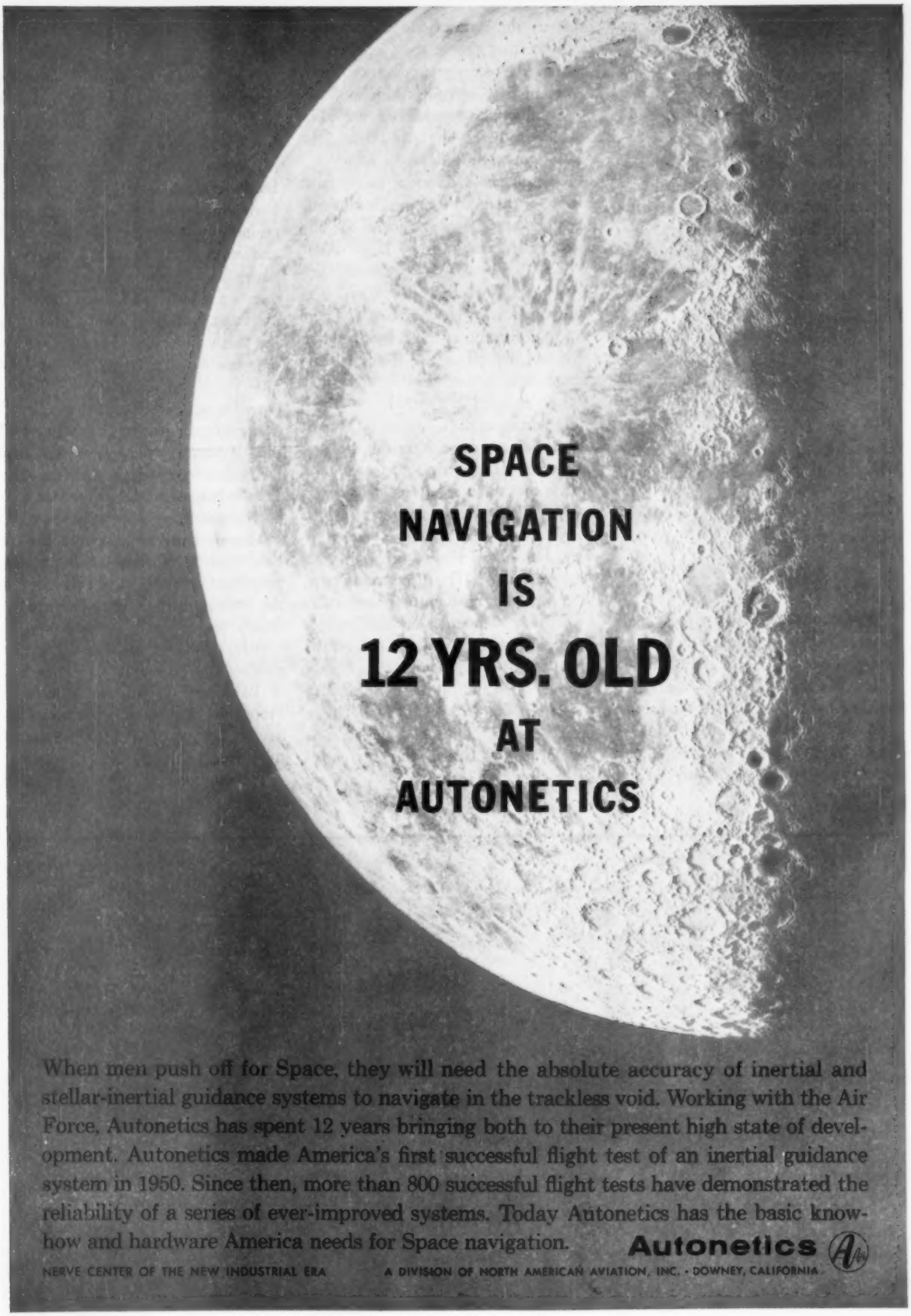
MR. CLARK. The Senator from Missouri was kind enough to discuss with me on the floor some days ago the capability of our country for fighting brushfire wars and, in particular, our deficiencies in airlift. In the Senator's judgment, does the bill on which we are about to vote adequately remedy those deficiencies?

MR. SYMINGTON. No, I do not believe so. For example, no army today can be modern if it is not mobile.

Despite the statements of those who place budget figures ahead of military strength, the American Army is not in a position to be lifted and supported overseas in anywhere near the minimum extent necessary.

MR. CLARK. That statement also frightens me, especially when I relate it to the situation which exists in the Middle East. I wonder what would happen if Communist China should decide tomorrow to attack South Korea, attempt to invade Formosa, and to undertake an operation against Laos, Cambodia, and Vietnam. I suspect the Senator from Missouri will agree with me that there is precious little the United States of America could do about it without starting an all-out global atomic war.

MR. SYMINGTON. I can only answer my able friend from Pennsylvania by quoting sworn testimony given first in 1956 and reemphasized in recent months before the Senate Preparedness Subcommittee. The United States Army does not have available sufficient capability to lift and properly support overseas a single division. I might add that the total airlift available to the



When men push off for Space, they will need the absolute accuracy of inertial and stellar-inertial guidance systems to navigate in the trackless void. Working with the Air Force, Autonetics has spent 12 years bringing both to their present high state of development. Autonetics made America's first successful flight test of an inertial guidance system in 1950. Since then, more than 800 successful flight tests have demonstrated the reliability of a series of ever-improved systems. Today Autonetics has the basic know-how and hardware America needs for Space navigation.

Autonetics

NERVE CENTER OF THE NEW INDUSTRIAL ERA

A DIVISION OF NORTH AMERICAN AVIATION, INC. · DOWNEY, CALIFORNIA

Marine Corps is far less adequate than that available to the Army.

In concluding the debate Senator Symington said:

"I have heard a great many discussions about the lack of air power and have participated in them. I have heard a great many discussions about the lack of naval power and again have participated in them. I have heard a great many discussions about the inadequacies of the Marine Corps position and have taken part in them too. But this is the first time I ever heard a discussion on modernization and strength of the Army.

"Modernity and mobility in the Army are essential to our defense. Therefore, I have taken the liberty of presenting to the Senate my reasons why I think the amount of money we spend to modernize our Army, based on the increased tension is totally inadequate."

The Military Budget for Fiscal 1959

We have quoted only a few of the Senators who participated in the debate. Others were Senators Saltonstall, Wiley, Jackson, Humphrey and Chavez. We have quoted more extensively from the remarks of Mr. Symington than any other Senator because he had more to say about this really crucial matter: the state of the U. S. Army.

Since that debate the Congress has passed the defense budget of nearly $40 billion. The Army's portion of this, $8.9 billion, is just half of the $17.8 billion allotted the Air Force (the Navy got $11.3 billion).

Congress was disposed to be more aware of the need for a greater defense effort than the Administration and voted more money for a larger Army (900,000 versus 870,000), more long-range air transport ($140 million), and more money for space research. There are indications that the Administration will not use all of the funds voted—for example active Army strength may still be reduced to 870,000.

In retrospect the Congress in its most recent session demonstrated a healthy awareness of the incompleteness of a policy that relies solely on massive retaliation and showed an interest in a policy that would give the nation military forces capable of dealing with limited conflicts. The dispatch of American forces to Lebanon heightened this awareness. Many members of Congress began to see that if the Communists chose to do so they could cause similar trouble all around the periphery of the free world and that the only answer to this kind of aggression is Army units—"skilled, tough, ready-round-the-clock" forces.

The Meaning of Explorer IV

The Army's Explorer IV—the first earth satellite designed specifically to probe cosmic radiation in outer space—was fired into an orbit 51 degrees north of the equator, whereas previous satellites were fired at 33 to 34 degree angles inclined south of the equator. In its orbital band extending 51 degrees north and south of the equator, IV makes 13 passes around the earth in 24 hours, carrying it over the United States and over that portion of the U.S.S.R. that lies south of the city of Stalingrad. The new satellite thus covers a band 7,000 miles wide, compared to 4,700 miles wide for our earlier satellites.

Explorer IV was sent aloft by a modified Jupiter C with a modified Chrysler Redstone missile as the first stage. Eleven Sergeant solid propellant rockets powered the second stage, three solid propellant rockets were used in the third stage, and a single solid propellant rocket, which is part of the orbiting vehicle itself, formed the fourth stage.

Army Ballistic Missile Agency supervised the assembly and launching of Explorer IV, with the Army's Jet Propulsion Laboratory providing the newly developed solid propellant for the third and fourth stages.

The orbiting vehicle is rocket-shaped,

Airlift to Lebanon. A trooper *(left)* leaps, *sans* parachute, from the plane that carried him from Augsburg, Germany, to Lebanon, via Adana, Turkey. Supplies rigged for paradrop *(right)* at Augsburg were flown into the Beirut airport.

...speaking of

Missile Ground Support **MOBILITY**

WE HANDLE THE COMPLETE MISSILE LAUNCHER PROJECT

...from design through production

In January 1957, Douglas Aircraft Company, Inc., contacted FMC regarding the design of ground support equipment for the IRBM-THOR they were developing for the Air Force. That same month, FMC engineers went to work in the Douglas plant—and the THOR transporter-erector, launching base, and power-pack trailer preliminary designs were developed.

At its own facilities in San Jose, FMC began subsequent engineering steps without delay, then produced and delivered the first operating unit in just 8 months—two months ahead of schedule.

Because FMC handled the entire project from design through production, with maximum coordination in every step of the program, this valuable saving in time was realized, and today, THOR equipment is being built at FMC under a production contract.

Why not take advantage of FMC's reputation for coming through on schedule in the design and production of defense materiel? *Consult with FMC at the initial stage of your missile ground support equipment project planning.* Contact us today for more information.

Creative Engineers: Find stimulating challenge at FMC's Ordnance Division.

THOR transporter-erector, launching base, and power trailer were delivered by FMC in just 8 months—2 months ahead of schedule.

U. S. AIR FORCE PHOTO

Putting Ideas to Work

FOOD MACHINERY AND CHEMICAL CORPORATION

Ordnance Division

Missile Equipment Section 4-E

1105 COLEMAN AVENUE, SAN JOSE, CALIF.

The infra-red binoculars strapped to the helmet look top heavy, but they help a soldier spot a target in areas covered by an infra-red searchlight. The infra-red sight on the rifle makes it possible for the rifleman to line up a deadly bead on a target during the darkness of night. These pieces of equipment, developed by the Engineering R&D Laboratories at Fort Belvoir, are being used in experiments by the Combat Development Experimentation Center at Ford Ord.

80 inches long, and six inches in diameter. The weight of the satellite proper is 25.76 pounds; overall weight of the vehicle is 38.43 pounds.

The most interesting and gratifying part about the orbiting is that the Army's ballistic team was completely successful in accomplishing its particularly intended purpose. As stated above, the satellite was specifically designed to study the intense cosmic radiation in outer space, prompted by the findings of earlier Explorers which detected much higher corpuscular radiation than had been anticipated. A detailed story of data from Explorer I and III revealed the existence at an altitude of 600 miles of a band of intense radiation never before recorded. A preliminary estimate is that as many as 35,000 cosmic radiation particles per second are bombarding the upper atmosphere from an as yet unknown source.

Thus, the Army ballistics scientists' problem was to put up a space vehicle high enough to record space radiation accurately. This was successfully accomplished. Explorer IV rises in its orbit up to 1,386 miles above the earth, well into the radiation belt discovered by Explorer I and III.

The most recent information gained from Explorer IV indicates that radiation intensities 1,200 miles above the earth represent an exposure level of about 10 roentgens per hour. This is more than 100 times as much as the saturation level of Explorer III's Geiger tube. At least 60 per cent of the charged particles bombarding Explorer IV readily penetrate the one-sixteenth inch thick lead shielding one of its Geiger tubes, giving some indication of how much protection a human or animal space traveler might require.

Discovery of such intense radiation does not necessarily mean that the space belt 1000 to 1,400 miles out in space is saturated with "killer rays," but it does suggest implications affecting human travel in space.

Apart from the radiation data gained so far from Explorer IV, as well as from its predecessors, new knowledge has been obtained and evaluated with regard to other physical phenomena of outer space.

Certain data have revealed that the density of the "air" in outer space is only a minute fraction of that on earth. A cubic mile of air at sea level weighs 5.6 million tons, whereas at only 220 miles above sea level, it would weigh only two ounces. Thus, the density of air at sea level is 90 million times as dense as at 220 miles up.

Other data obtained recording micrometeorite density in space give evidence that a satellite would not be seriously endangered by the impact of small meteorites traveling 25,000 miles per hour. Instruments on Explorer I and III indicated that the number of meteorites in outer space is too small to constitute a continuing danger of serious collision with a satellite, thus apparently eliminating one potential threat to future space travelers.

It has also been found that temperatures inside the earlier Explorers were within the bounds of human endurance, ranging from 32 to 95 degrees Fahrenheit inside the cylinder, and from 41 to 104 degrees inside the nose cone. A recent IGY bulletin states that "The technique of protecting instruments in a satellite provided temperature control in a satellite within the range of human survival."

Finally, data sent down from Russian Sputnik II by its involuntary canine passenger indicated according to Soviet scientists, that "the animal well endured not only the Sputnik's ascent to the orbit but also the conditions of travel along the orbit," including weightlessness. This is the first evidence of any kind that a human space traveler could also withstand the physical conditions inherent in outer space.

The implications are clear. At some time in the future man will move into outer space.

General Officer Shifts

Maj. Gen. Robert H. Booth to CONARC . . . Maj. Gen. David H. Buchanan to MAAG, Korea . . . Maj. Gen. Normando A. Costello to 7th Inf Div . . . Maj. Gen. Edward G. Farrand to ODCSOPS . . . Maj. Gen. Carl F. Fritzsche to USATC (Inf), Fort Ord . . . Maj. Gen. Rush B. Lincoln, Jr. to OCT . . . Maj. Gen. John F. R. Seitz to First Army . . . Maj. Gen. Archibald W. Stuart to OCSA . . . Maj. Gen. John E. Theimer to 25th Inf Div . . . Maj. Gen. Thomas S. Timberman to USASA . . . Maj. Gen. Norman H. Vissering to USATTC, Eustis . . . Maj. Gen. Earle G. Wheeler to 2d Armd Div . . . Brig. Gen. John E. Leary to Fifth Army . . . Brig. Gen. Richard D. Meyer to OCT . . . Brig. Gen. Carl W. Temple to OTSG . . . Brig. Gen. Morton E. Townes to USATTC, Gulf.

Retirements. Lt. Gen. John F. Uncles . . . Maj. Gen. Emil Lenzner . . . Maj. Gen. John B. Murphy . . . Maj. Gen. Paul I. Robinson . . . Brig. Gen. William R. Currie . . . Brig. Gen. Thomas M. Mattingly . . . Brig. Gen. Lyal C. Metheny.

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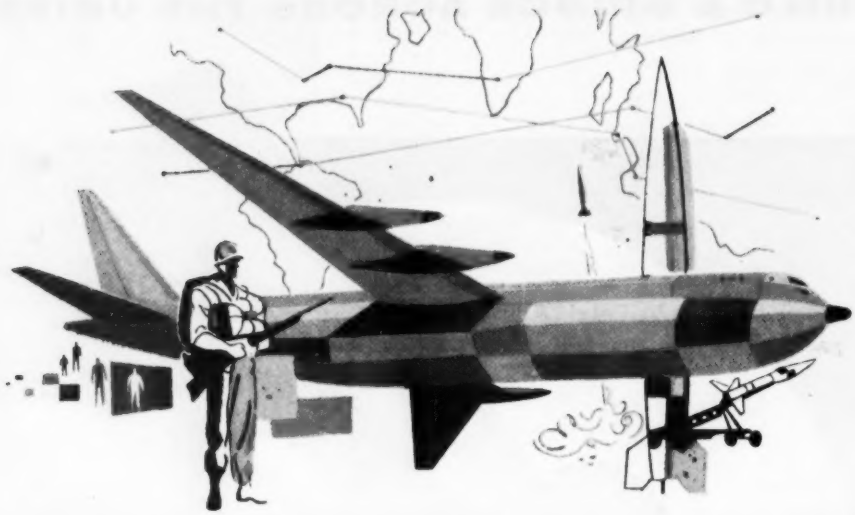

WHAT ABOUT AIRLIFT?

JOHN B. SPORE

ARE this nation's war-deterrent and war-making capabilities less than they should be because of the lack of sufficient strategic (long-range) transport aircraft to move Army combat divisions anywhere in the world?

The answer unfortunately has to be Yes.

The airlift of an airborne battle group from Germany to Lebanon demonstrated the celerity with which a trained and equipped Army force can be moved long distances, but the difficulties the USAF encountered in making the movement demonstrated also that the paucity of modern airlift is hampering and will continue to hamper the full use of the Army's mobile STRAC (strategic army corps) as an instrument of U. S. foreign policy.

Senator John Kennedy emphasized this in an important defense policy speech before the Senate:

"It should be obvious from our Lebanon experience that we lack the sea- and air-lift necessary to intervene in a limited war with the speed, discrimination, and versatility which may well be needed to keep it limited—and without weakening our ultimate retaliatory power."

Military terminology recognizes two kinds of airlift of ground combat forces: strategic and tactical, or in simpler terms long-range and short-range aircraft. While the theoretical differences between the two are quite clear to the military, in actual practice they tend to merge. For example, the latest military "assault" transport of the United States Air Force is the Lockheed Hercules, a four-engine prop-jet that has flown nonstop (with favorable winds) more than 2,400 statute miles carrying a payload of 15,000 lbs.

It is the position of the Association of the U. S. Army that there should be available sufficient long-range airlift to "move immediately and to support thereafter two divisions . . . under a guaranteed priority for Army use." Competent testimony has been developed by Congress to show that we would find it difficult to move even one division by air, and would probably be unable to support it fully thereafter by airlift alone. Senator Symington has stated that there has been sworn testimony before Congress that our airlift is insufficient to "lift and properly support a single division overseas." This is, the Senator added, "a sad statement incident to the capabilities of the Army."

Considerable benefits would accrue to our cold war strategists if sufficient airlift were on call to place one or two Army divisions anywhere in the world. Flexibility in choice of weapons and choice of targets has always been a sound rule of strategy, and for too long our cold war planning has been hampered by the inflexibility of massive retaliation theories on the one hand and inadequate limited-war means on the other. An increase in strategic airlift sufficient to carry one or two Army combat divisions to several parts of the world simultaneously would give our planners a highly flexible instrument, and this would, in turn, pose problems for the Kremlin. The knowledge that the U. S. has the means to intervene on the ground would certainly circumscribe Soviet aggression. Such a capability would tend to eliminate those power vacuums the Kremlin so dearly loves to exploit.

The Soviets understand

That the Soviets understand the significance of the transport aircraft in such situations is attested by this statement by a Major General Pokrovsky (quoted by Raymond Garthoff in *Soviet Strategy in the Nuclear Age*): "The perfection of transport aviation will enable the development of airborne troops and significantly increase the maneuver potentiality of [all] troops, permitting the conduct of operations in great depth, swift creation of superiority in forces in the main sectors, and also reinforcement of troops *on those sectors where an unfavorable situation has developed.*" (Italics added.)

Although it is quite apparent that a greater awareness of the strategic virtues of long-range airlift for a mobile Army force such as STRAC would be held on the part of some planners, the real stumbling block has not been a refusal to accept these facts, but arguments that evade them and raise other objections.

An understanding of the airlift issue can be gotten from an assiduous study of the various volumes of printed testimony of hearings before Senate and House committees and subcommittees. However, it is frustrating. While much of the testimony is redundant, the frustration is not from the repetition but from the elusiveness of hard facts about this nation's present resources in airlift and the possibilities of increasing it. Assertions of adequacy of airlift are mingled with cautious acknowledgments of marginal capacity. A reader of the record who wants enlightenment begins to feel like Senator Symington who remarked, after an exhaustive but inconclusive bout with witnesses who were in a position to know the facts, "I am going to think up a new way of asking this airlift question."

AUSA RESOLUTION ON AIRLIFT

WHEREAS, Communist tactics in creeping aggression can be countered only by the help of an immediately available air lift that can move quickly two Army divisions to any trouble spot, and

WHEREAS, There are not sufficient long-range transport aircraft within all the forces to move one division, and

WHEREAS, Upon the outbreak of war existing long-range transport aircraft is not adequate to meet the most urgent requirements, and

WHEREAS, Because of the multiplicity of demands in war, the Army must be given a guaranteed priority for the use of aircraft to move the two divisions at once,

THEREFORE BE IT RESOLVED, That the Association of the United States Army use all the means at its disposal to publicize the necessity for procurement of sufficient long-range airlift to move immediately and to support thereafter two divisions of the mobile striking force under a guaranteed priority for Army use.—(Adopted at the 1957 Annual Meeting.)

Today's aircraft—and tomorrow's

The aircraft used in the airlift to Lebanon were C-124 Douglas Globemasters, C-119 Fairchild Flying Boxcars and C-130 Lockheed Hercules. Of these only the C-130, a four-engine prop-jet, can be called a modern transport and it is essentially a short-haul aircraft with a range of less than 2,500 nautical miles and a payload of twenty tons. The C-124 Globemaster four-engine is an older plane but can carry a larger load—twenty-five tons on relatively short hops and seventeen tons 2,000 nautical miles. The C-119 Flying Boxcar has been in use for almost a decade. It is a short-haul, two-engine aircraft and can carry an eighty-ton payload.

At present the USAF has a few C-133 Douglas Cargomasters that can carry up to forty-five tons 1,600 nautical miles or twenty-five tons 3,500 nautical miles. The Air Force is buying more C-133s and the Congress recently appropriated an additional $140 million for more of them. However, the Administration may not spend this additional sum. In either event the amount of airlift available will be insufficient for the Army's air age needs.

The C-132 which was cancelled by the Air Force in 1957 was to have been a four-jet turbine-propelled aircraft capable of carrying 200,000 pounds at a speed of more than 460 miles. The payload for ranges of 3,500 miles would be 100,000 pounds—substantially more than any existing transport.

In addition to the ill-fated C-132 there is another concept for a very large world-girdling transport. This is the Martin Company's concept of a seaplane capable of carrying an entire infantry company fully equipped, together with vehicles and three days of supplies. It has a gross weight of 200 to 300 tons and would be powered with as many as ten jet engines. Mr. Guy Mallery, Martin Company engineer, has stated that these aircraft could be "utilized for all-weather, all-climate operations." That it does not need a runway makes it an attractive feature. Studies have indicated that suitable bodies of inland water exist throughout probable theaters of combat, Mr. Mallery has said. Certainly that is true of Lebanon and if such an aircraft had been available it would have been a very useful vehicle.

The opposition cites cost

The respected military analyst of *The St. Louis Post-Dispatch*, retired Brig. Gen. Thomas R. Phillips, has noted these two reasons why the Army has been unable to make its case for more airlift:

- "The Air Force feels that Air Force funds should be spent on more important items, such as heavy bombers and long-range missiles. The result has been that there has been a three-to-one majority in the Joint Chiefs of Staff (for the past five years the chairman has been a Navy admiral or an Air Force general) against the Army.
- "The Secretaries of Defense have hidden behind the assertion that as much airlift was being provided for the Army as the JCS considered necessary. It has

been well-known for years, although it has been supposed to be secret, that the JCS decision was to provide for the airlift of a regimental combat team, or about one-third of a division."

As General Taylor has so often said, the Army has to hitch-hike when it wants to travel by air. Unlike the other services it doesn't own a single transport aircraft even for its own administrative purposes. When Mr. Brucker or General Taylor or General Clarke of the Continental Army Command want to travel by air they must ask MATS for an airplane. This is untrue of the other services. The Navy, for example, has twenty transports for its own administrative use. The Marine Corps has its own and so too, of course, does the Air Force.

A recent Army News Service press release revealed General Taylor's thinking in these words:

"Declaring that STRAC contains the top priority divisions and supporting troops which the Army would send first to a scene of emergency, the Chief of Staff said these divisions are constantly ready to move either by air, sea, or a combination of both.

"It is the need to give mobility to this force which causes us to be so vocal in our insistence upon the requirements of strategic movement," the General said.

He stressed the need for careful joint planning [between Army, Air Force and Navy] and training to assure speed of reaction, and explained: "The Army does not control the means necessary for such [strategic] movement. We are hitch-hikers of the Air Force and Navy."

The Army states its requirements

In the June 1958 issue of the official *Army Information Digest* requirements for a transport aircraft for the Army were stated in these words:

"Aircraft with increased range and payload are a 'must' if we are to lessen our dependence upon en route bases—our Achilles heel. The Douglas C-132 aircraft, had it been ordered into production, would have been a step forward for it was designed to lift fifty tons about 3,500 miles.

"There is a need for a cargo aircraft which is less dependent upon the long runways of first-class airfields, which has improved capabilities for landing and taking off from short, unimproved fields. The ideal aircraft for airlift purposes would be one capable of carrying 600 or 700 troops at speeds of 500 to 600 miles per hour—an aircraft capable of carrying heavy combat-type equipment, non-stop for distances of 3,000 to 4,000 miles at the same time not requiring elaborate facilities.

"An important variation of such a program would be the development of very large water-based aircraft, for lakes and streams are much more plentiful than airfields, are not vulnerable to enemy attack, and require less preparation and maintenance."

Quoting these requirements to Lieutenant General C. S. Irvine, Deputy Chief of Air for Matériel, *American Aviation* magazine said he replied that "it is both aerodynamically and economically unfeasible at this time to build the airplane which the Army says it wants in numbers that would be needed to make troop movements of the type described practical." He added, *American Aviation* said, that the Air Force would have liked to order the C-132 into production, but the economic strains on the budget would not have made this possible without forcing the abandonment of more important projects.

American Aviation quoted Vice Admiral W. V. Davis, Jr., former Deputy Chief of Naval Operations (Air) as disagreeing with General Irvine on the question of aerodynamic feasibility.

"It is now aerodynamically possible to build an airplane to almost any size," Admiral Davis is quoted as saying, and he added: "The trouble is that it wouldn't be economically feasible."

Economics of the air age

The question of whether such an aircraft can be built today can be answered only by aircraft designers and engineers. It is worth noting that the Douglas C-132 project was not cancelled because it couldn't be built, but because of cost—and after about $70 million had been spent on its development.

However, neither the Air Force general nor the Navy admiral are the final authority on the economic factor, and there are those who question whether the Nation can afford not to build to the utmost limit of its technical capability. Both the USAF and USN know from experience that the larger and faster transport aircraft when used to full capacity is more economical than the smaller and slower one. The U. S. commercial airlines know this too, else why would they be preparing to move into the jet age at great initial cost?

But it is said that the Army wouldn't have any use for these aircraft except in emergency, and that this is what makes it economically unsound.

The Air Force's own experience refutes this. A few years ago with great fanfare it began what it called "air age logistics" by supplying its far-flung bases by air, so far as it possibly could. It reasoned, and correctly, that the air transportation of men and supplies was cheaper than surface transportation because of the shorter travel time. In a press release dated 13 May 1958, the Air Force announced that it was going to "reduce European depots through better air logistics." This "modern logistic support method" will, the release said, eliminate the middleman in logistics operations and eliminate "stock piles [that] have been costly to maintain."

If this is true for the Air Force it should be no less true for the Army. It would seem that it is getting a bit past time for the Army to enter the air age. To deprive it of the benefits—military and economic—of air transportation more than a half century after the birth of flight is simply shortsightedness—and perilous when we consider that adequate modern airlift for the Army would deliver into the hands of our cold war strategists a flexible instrument for war or peace.

An Invitation to War

COLONEL DAVID L. EDWARDS

WAR is waged between men, not weapons. But public opinion regarding war and military posture depends to a great extent on the trends of weapons research and development. The public is not alone in this faulty thinking habit, for it also afflicts some professional military people. It needs correcting. Weapons are changing factors of war, whereas the fundamentals of war do not change.

The Army has explained its position on brush-fire wars. Our people now know that unless the Army has an ample number of modern divisions, with appropriate means to move anywhere on the globe, brush-fire wars will continue to consume the free world, a country here, a country there.

There is no more practical deterrent against brush-fire war than an up-to-date man-sized Army that can take such a war in stride.

The Army has *not* explained completely to the public its role as a deterrent to or its place in general war. The problem of doing so is made difficult by its lack of flashy equipment and the relative lack of glamor of its backbone—the infantry fighter. It is similar to explaining the merits of good versus evil; one must reach into the upper regions for the basic arguments.

Meanwhile the value of land forces is fully understood by the Communists, who are training and modernizing hundreds of divisions while the United States has less than sixteen and plans still more cuts in the future. This situation is an invitation to war.

War is not merely physical destruction for the sake of physical destruction. War, as a political event, is an attempt to destroy the old political mold and install a new one through domination over the minds of men. When the tenets of human behavior change, then the fundamentals of war will change commensurately. Weapons of war change rapidly and are frequently obsolescent even before they can be copied into plastic toys.

The true objective of war has been glossed over with the capabilities of new missiles, airplanes, submarines and satellites. These capabilities are for one use only: physical destruction. Physical destruction as an all-out objective of war is not compatible with the objective to dominate men's minds. The first is a false objective, a mirage of the architecture of war, born out of fear of unleashed atomic war. This mirage can cause both the novice and the experienced leader to fix upon the façade of destruction as the complete architecture of war.

War is fought by phases

Once we forget the basic design of war, the military posture of the nation suffers.

"Military posture" is the balance that is maintained for military action and that determines the types and degrees of military action that a nation can realistically undertake. The United States, for example, now inclines toward a posture for a single-phase war of complete destruction by atomic assault alone.

Although our military posture springs from the mistake of regarding war solely as an assault for physical destruction, the fact remains that any war involving a major power will follow the sequence: preparation, assault, exploitation, consolidation. Any military action, whether it be local, a campaign, or a total war, has the components of preparation, assault, exploitation and consolidation, in that sequence, within a sound, deliberate plan.

Preparation for war includes industrial and economic preparation, military and psychological build-up. Industrial and economic preparation and military build-up are easily recognized. Psychological build-up ca.. have many patterns. The most appropriate pattern today starts with a peace offensive, marked by trade and cultural exchanges, state visits, and propaganda against war. When the time is right and the intended victim is happy and relaxed, the themes reverse. Suddenly, the perpetrator turns to building tensions, creating a journal of "wrongs and depredations" and inviting cause for military action. When the victim awakens it is too late to prepare himself!

Colonel David L. Edwards, *Infantry,* has had wide command experience in infantry and armor units, and during World War II led an Army battalion attached to the Marines during the Marianas campaign. After a tour with the Military District of Washington, Colonel Edwards is now taking airborne training at Fort Benning.

Then comes the next phase, the assault phase of war. This is characterized by physical conflict, destruction, and general use of weapons of war.

An atomic assault upon the United States would not be an entity, a war of itself. It would not be the whole attack; it would be merely the assault phase of a larger, over-all intention.

All by atomic assault

This is where the mirage affects people who feel that the atomic assault is everything. Some saner souls sense that there is more to war, and cry out "remember the exploitation phase to follow." Their cry is brushed aside by an unimaginative assumption that the United States has the means to neutralize or blunt an enemy attack. This was part of the original "massive retaliation" idea. Of late, however, this assumption has been withdrawing to a somewhat more realistic line which now reads: "Our retaliatory capability will destroy any enemy capability to *exploit* his assault upon continental United States."

With this latter version, the original mistaken assumption has matured to the increased dignity of half-fact. The factual part is the recognition, however slight, of the philosophy that no professionally advised enemy will ever assault unless he can expect to exploit as well.

Yet, in a non-aggressive nation like the United States, the latter version finds a ready market. The principal customers are the advocates of "do-all-by-atomic-assault" who look upon this assumption as a new "strategic slant."

So, to summarize: the enemy is alleged to be unable to exploit, so he will not assault. Upon this kind of reasoning, we could shape a military posture that invites war.

The philosophy of the "cannot exploit" assumption is manifested with variations. It is implicit in the thinking that would divert ground combat forces to civil defense after an enemy's atomic assault. It is dangerous to as much as whisper such a thought, so wrong is it, so inviting of disaster by its appeal to the advocates of do-all-by-atomic-assault, yet it is difficult to confront with argument. Again, we are in a position of arguing for good against evil.

What to expect of the enemy

Here is what can be expected of any enemy with sufficient sense of military responsibility to follow the classic phases of war. Following the preparation phase, his assault would be used to either stun or cripple the war-making capability of the United States, while simultaneously his exploitation would be directed to seize, for example, any part of our Western Hemisphere, or Africa, the Middle East, or western Europe. The land and sea defenses would have a ceiling of resistance no greater than that which existed the day before the assault.

Now, let us appraise the suicidal assumption that United States' retaliatory capabilities could destroy, or neutralize, or critically affect the aggressor's exploitation we have described.

To start with, an aggressor intent upon broad military operations beginning with an atomic assault upon the United States will, beforehand, logically attain certain related capabilities: First, a capability to assault simultaneously sources of possible U. S. atomic retaliation and other selected targets, with atomic measures; second, a highly perfected air defense; third, land and sea forces that will, with full regard to the effect of the preceding two capabilities upon our retaliatory effort, provide the needed capability to exploit an atomic assault.

It is logical, then, that the assumption that "the enemy cannot exploit" which we set forth to appraise is an irrelevant one. It is not germane as assurance against a realistic intention or war plan of a worthy enemy.

Do all with strategic destruction

There is one more bit of self-hypnosis to confront. The philosophy of do-all-with-strategic-destruction assumes that "the strategic assault will be so devastating that the will of the attacker will dominate without further military action." Let us bring into focus the difference between the terms "exploit" and "dominate." *Exploit* means military invasion and occupancy as a step before political domination; *dominate* here implies that the attacker will move in backward, with his political programs leading and his surface forces bringing up the train.

It is painful to listen to an underestimation of the enemy. How can the United States support any estimation other than one which allows the enemy to destroy "just enough" in the assault? Are we suddenly entitled to assume that an attacker will totally destroy

ARE WE WILLING TO BE

In War and Peace in the Space Age *(see page 34)*, *Lt. Gen. James M. Gavin writes:*

Thus once again in [Indochina] the West had to accept something less than victory in a limited war with the Communists, in this case defeat. The same arguments were heard that echoed through the halls of the Pentagon during Korea. It would be the wrong war, at the wrong place, at the wrong time. It was exasperating. Wouldn't the Communists ever provide us with the right kind of a war? And we didn't want to start a war that would spread into the vastness of southern China, or Thailand, Burma or Malaya. And so it went. Actually, Korea and Indochina had one fundamental characteristic in common. . . . They were limited wars, in a limited area, so located as to make it difficult for either side to support profusely. There was no problem about the war spreading, unless we had to make it spread because of our inability to do anything else. We should have had the tactical means to strike and

NIBBLED TO DEATH?

win, swiftly and severely. And, if in the past ten years we had spent even a small part of what we have spent in readying our forces for a one-strategy general war, in developing and procuring the means of dealing with limited war, we could have settled Korea and Dien Bien Phu quickly in our favor. Tactical nuclear missiles, sky cavalry, and increased assault airlift can contribute decisively to that kind of an operation. And as long as we neglect such developments we will be incapable of dealing with limited wars and we will continue to be nibbled to death.

Limited war is a more highly specialized form of combat than global nuclear war, and we had better realize it and do something about it. It makes little sense to assume that since one has the power to wage general war successfully, by using a little bit of that capability you have, *ipso facto*, a little war. A thermonuclear-equipped B-52 can contribute little more to the solution of a limited local war than a 155-mm. gun can contribute to the apprehension of a traffic violator.

before exploiting? We know that to under-destroy while assaulting is expensive during the exploitation; likewise, to over-destroy during the assault is uneconomical both then and during exploitation. Underestimation of the enemy is the most fatal of mistakes! Underestimation of the enemy is a poor heritage handed down from one generation to another. The philosophy of do-all-with-strategic-destruction not only underestimates the enemy; it ignores the tenets of human behavior insofar as "why we fight" is concerned. It also fails to confront historical proof of the necessity for observing the true architecture of war. For purposes of direct application to the matters at hand, we shall look at historical examples involving exploitation and also the contrary—failure to exploit.

The architecture of war

Within the adult lifetime of most of us there have been historical examples of disregard for, and observance of, the classic phases of war: preparation, assault, exploitation and consolidation. This disregard flows from biased planning which over-accents or underestimates a single phase of the classic sequence. Here are three historic examples that we all remember, involving the exploitation phase.

Hitler, while planning for the defeat of Britain, did not choose to include the critical exploitation phase—invasion and occupancy. As a last resort he attempted to substitute strategic bombing—an assault measure—for invasion. He tried to influence British minds without exploiting Dunkirk—on the ground. We know what happened.

At Pearl Harbor the Japanese could have, at least, insured themselves against total loss of the war had they exploited their surprise attack. The Japanese Navy met with the maximum of success during the assault, but its basic principles were wrong. It omitted a plan to combine and converge the exploitation capabilities of the Japanese Army. Remember, always, that the Hawaiian Islands were open to invasion and the West Coast of the United States was unprepared to meet a planned, balanced, determined invasion! Please remember that; it was only seventeen years ago!

Back to Hitler, this time planning correctly: the invasion of Norway. It seemed so easy, Norway fell like an overripe fruit. Norway was not overripe; Hitler's architecture was correct. Preparation was detailed, exacting, and timing was the most important element. A sudden, surprise assault hit the Norwegian Navy. Norwegian coastal defenses were lashed with fierce attack. German paratroopers landed to seize airfields and then, while stunning surprise was still effective, German soldiers poured from warships and literally marched into Norway before the eyes of the hundreds of thousands of Norwegian reservists, lost among the other civilian watchers. Thus, contemporary history shows the criticality attached to the understanding of the architecture of war.

Liberty is the prize

Atomic weapons and missiles will not change this basic architecture. While it is certain that land operations of a future general war will be only distant, more sophisticated relatives of land operations in World War II, the major objective of the war will be the same. This can be said because World War II, and the next general war to come, will have Liberty as the prize to be held or lost. Liberty is abstract, not material. It is a product of men's minds and spirits. American soldiers will hold our liberty or enemy soldiers will take it away. Missiles and atomic weapons will but serve to pave the way, in the beginning, for the soldiers.

The soldiers who do the fighting will begin their tasks with the exploitation phase, after the preparation and the atomic assault. Meanwhile, during contemporary years, the United States in its efforts to deter war must recognize an exploitation force of land arms as essential to a balanced posture and authentic retaliatory force or deterrent.

Conversely, by maintaining a land force capable of countering, closing with and destroying an exploitation force, the United States again deters the enemy because he finds that his assault must be too broad, too expansive and non-selective, too defeating of the very objective of his war of aggression. The enemy would prefer to dominate live minds than to annihilate all minds.

Thus it can be explained and understood that there is more to war than atomic assault, that victory or defeat is determined by the contest of opposing exploitation forces. To decimate, to deplete the land forces, is to dismember and unbalance the retaliatory deterrent and makes selective assault and exploitation by the enemy a possibility. Indeed, this constitutes an *invitation to war*.

SQUASH

LIEUTENANT COLONEL

E. M. FLANAGAN, JR.

CAPTAIN Ijn Itagaki, Imperial Japanese Navy, walked confidently to his desk in Corregidor's Malinta Tunnel. Picking up his phone, he called his operations officer: "Assemble the staff. I have just completed my personal reconnaissance of the island and have an important decision to announce."

Five minutes later the staff of Corregidor's Japanese commander stood stiffly before him. It was 11 February 1945.

"You can stop worrying about parachute landings on Corregidor," Itagaki told his staff with the infallible authority and dictatorial manner of Japanese commanders of that period. "None can take place. I have just finished reconnoitering the island and there are no suitable drop zones for the landing of American parachutists. Intensify your plans to repulse an American amphibious landing in the areas of Bottomside and San Jose. That's all. Dismissed!"

Five days later, Lieutenant Colonel John Erickson stepped out of the door and into the propblast of a C-47 four hundred feet over the bomb-cratered, rock-littered, devastated Topside of The Rock to lead his 3d Battalion, 503d RCT, in the vertical assault on Corregidor. In so doing he made Captain Itagaki a fatally false prophet.

The Japanese had planned, through Itagaki's lack of foresight, to meet a conventional amphibious assault. Instead, they were hit from above. The rugged paratroopers of Colonel George Jones's 503d RCT were swarming all over Topside before the defenders could assemble enough men to defeat them on the landing zones.

Itagaki's estimate of the situation proved entirely wrong because the 503d Parachute RCT used imagination and was willing to take a chance.

Daring paratroopers could land

The Americans, too, had reconnoitered Corregidor from the air, and had talked to men who had been

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Lieutenant Colonel Edward M. Flanagan, Jr., *Artillery,* master parachutist and occasional contributor, served in the Pacific with the 11th Airborne Division, and after the war wrote its World War II history. After a tour in the Pentagon he is attending the Army War College.

ON THE ROCK

stationed there before the war. Itagaki was almost right. Suitable drop zones were indeed hard to find on the jungle-covered, rugged island which measures only 2,500 yards at its widest point. The main portion of the island is bounded by cliffs which rise to more than five hundred feet. Most of the clearings that existed were filled with the pre-war barracks, houses, gun emplacements, ships, warehouses and roads of an active military installation. In short, Corregidor was somewhat less than ideally suited for vertical envelopment.

But two small clearings on Topside, each about 250 by 150 yards—one a former parade ground, the other a very small golf course—were all the 503d needed for a landing. Of course, unlike the mass drops in Europe, no vast formation of aircraft, nine planes wide, would be possible. But daring paratroopers could land.

The pattern of the planes making the drop was unorthodox. The C-47s lined up behind one another to form two large circles over each drop zone. As each plane came over the DZ, six to eight men would jump. Then the plane would circle and next time around drop eight more. In this way, two reinforced battalions of the 503d were dropped in less than three hours. Antiaircraft fire was no problem because it was knocked out during the softening up prior to the drop.

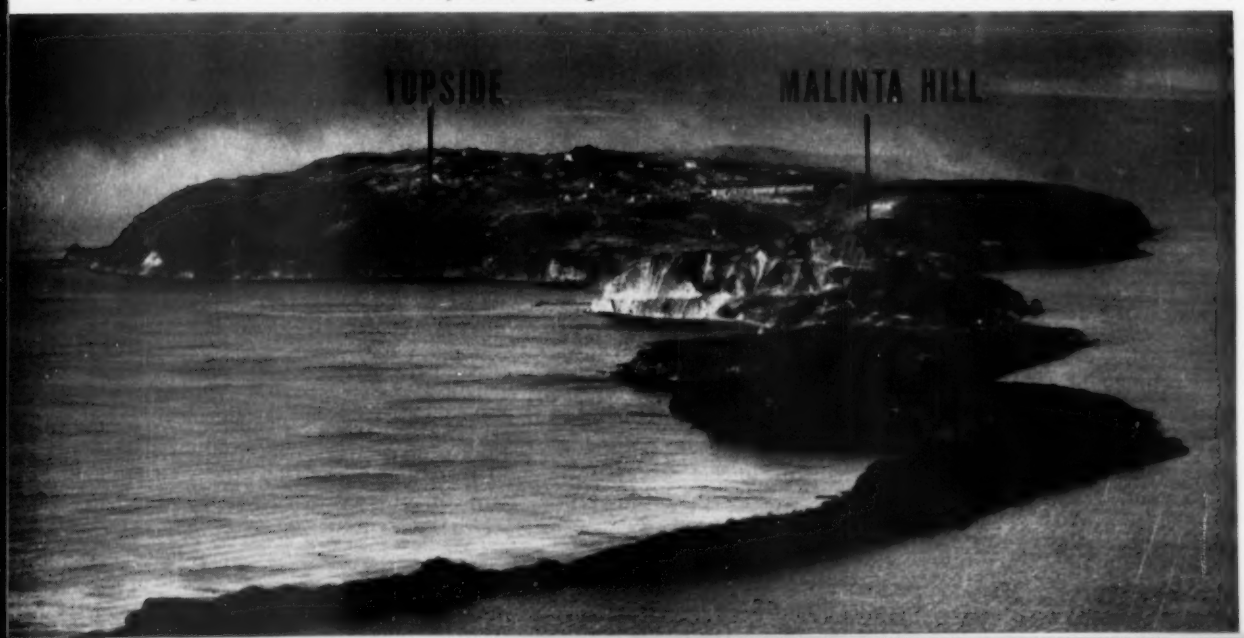
But even dropping only about eight men at each pass, the casualties were high—almost eleven per cent of the assaulting force. A 15- to 25-mile-per-hour cross wind bedeviled the troopers, as they tried to steer their parachutes to the small drop zones. Even under ideal conditions parachutes are hard to steer. Some troopers hit the cliffs, others dropped into the water or landed on the roofs of buildings; more fortunate ones fell into soft bomb craters, hundreds of which were excavated by the Navy and Army Air Forces in their pre-assault shelling and bombing. Some, like Father Powers, Catholic padre of the 503d, were hit by Japanese small-arms fire as they dangled from their chutes. For even though at first the Japanese were unable to muster large numbers at any one point to attack the paratroopers, vulnerable as they were while landing, the defenders were able to scatter some snipers around the drop zones to potshot, with some success, at the descending troops.

But in spite of the cliffs, wind, small drop zones and defenders on the landing areas, the 503d was shortly able to assemble enough men and to round up enough mortars, machine guns, ammunition, radios, howitzers (all of which were dropped with the men) to begin a coordinated attack against the defenders. Estimates of the number of Japanese on the island varied, but before ten days had passed, almost six thousand were accounted for—mostly dead.

A dirty, slugging fight

But even the bravery and daring of the men who jumped on The Rock were not enough to defeat the Japanese without a dirty, slugging fight which began at the drop zones, raged through caves, holes and tun-

As the target of a vertical envelopment, Corregidor was less than ideal, but that didn't stop the 503d



nels, and moved through the concrete gun emplacements. It finally blew itself out with the gigantic suicidal explosion of Malinta Tunnel along with its occupants and many of the attacking troops.

The fight for the island was rugged and costly because the Japanese had not been idle during the months since General Jonathan M. Wainwright had been forced to surrender his command to General Homma on 6 May 1942. The steel-and-concrete gun emplacements, which made up many of the pre-World War II defenses of Corregidor and which were shattered by the Japanese in their conquest of the island in the dark days of 1942, had been partially restored. The power plants had been made operational by captured American experts forced at bayonet point to work for their captors. The Japanese had bored an intricate, interlaced system of tunnels which connected one part of the island with another and which made it possible for them to go underground in one part of the island and pop out of the ground unexpectedly at another.

Machine-gun emplacements, artillery positions, preset demolition charges, and barbed-wire entanglements added to the monumental task facing the 503d RCT troopers. Even the prolonged and intense pre-assault softening up by Army Air Forces bombers and fighters and by Navy capital ships failed to knock out many of the Japanese. Holed up as they were, they could remain burrowed until the bombardment lifted and then come out fighting in *Banzai* attacks.

End run at San Jose

While the paratroopers were landing on the top part of the island, the 1st Battalion, 34th Infantry, made an amphibious assault near San Jose dock (between Topside and Malinta), proving Itagaki at least partly right. Even though Itagaki had concluded that this would be the site of the major landings, the defenders were unable to repulse the amphibians. The 34th succeeded in getting ashore and established near Malinta Hill. They opened up San Jose dock so that it could be used to land supplies for the paratroopers on Topside.

On Topside, after the 503d and its supporting units of artillery and engineers had landed, their work really began, for the defenders had to be systematically flushed out from one end of the island to the other. Those who wouldn't come out to fight had to be blasted out. The system adopted by the paratroopers to flush the enemy out of their holes and caves was brutally effective.

A team of infantrymen armed with bazookas and demolitions formed the attacking group. First the team fired a bazooka shell into the mouth of the cave. Then, with the defenders shocked by the blast, they moved close enough to toss a white phosphorus grenade into the opening. This permitted a flamethrower team to move up to within squirting distance. Once in position, the flamethrower operator fired his oversized torch into the cave. This either caused the occupants to come out screaming and be disposed of by the rest of the team standing by, or suffocated them, since the flame was so intense it used up most of the oxygen in the cave.

Step-by-step mop-up

The subjugation of the island, once the Japanese had recognized the futility of organized attacks, became a step-by-step, methodical wiping out of each pocket of resistance. However, the first organized attacks were savage.

The defenders made their first real bid to repulse the invaders on the night of 18-19 February, two days after the initial drop. Lieutenant Joe Turinsky, commanding Company D, found that the Japanese had infiltrated his position at 0330 in the morning. He was even asked to surrender when the Japanese reached his CP. Reacting like a paratrooper, he increased his

"CAREFUL RECONNAISSANCE . . . CLOSE COORDINATION . . . PERFECT

In From Down Under to Nippon, *his memoirs of World War II, the commander of Sixth Army, General Walter Krueger, wrote these paragraphs about the airborne operation against Corregidor:*

The airborne assault against Corregidor was determined upon after careful consideration, because an amphibious assault was certain to be extremely costly. I vetoed a proposal to make the drop at Kindley Field, at the eastern end of Corregidor, the only really suitable drop site available on the island. A drop there would have exposed the paratroopers to devastating fire from Malinta Hill and Topside. It seemed better to me to make the drop on Topside itself, where the Japanese were not likely to expect it to be made.

Aerial reconnaissance and photographs indicated only two practicable drop areas on Topside: the parade ground and the golf course, each a mere couple of hundred yards across. Their combined areas were extremely small for a parachute drop. . . . But since these two areas were the only ones available on Topside, their disadvantages had to be accepted and jump plans were made accordingly.

Although Topside was, indeed, an extremely rough area in which to make the drop, it offered us the best chance of surprising the enemy. Since the drop had to be made in the daytime, arrangements were made for the Navy and the Air Forces to bombard Topside thoroughly for several days preceding the assault, as well as on D-day, prior to H-hour. This bombardment was highly effective and contributed greatly to the success of the airborne operation. . . .

The amphibious landing to be made on Corregidor by an infantry battalion in conjunction with the airborne assault was considered essential to gain a beachhead, establish a supply base, and secure Malinta Hill. The landing seemed feasible, since it would be made while enemy forces were disorganized by the bombardment and the airborne assault.

* * *

OUTSTANDING STAFF WORK . . . TIMING . . . SUPERB PERFORMANCE"

The first lift of the 503d Parachute RCT began to drop its load at 0830 on the 16th as scheduled. Beginning at that hour and continuing until 0930, two groups of A-20s covered the areas outside the drop zones. As soon as the first lift of paratroopers was on the ground, three squadrons of A-20s were kept on air alert: one to fly smoke missions on call, the other two to support the second lift which began to drop its load at 1250.

Antiaircraft fire struck a few of the incoming planes on the first lift and wounded a number of men, but the supporting A-20s silenced most of that fire and no planes were lost and the jump proceeded as planned.

The second lift, although exposed to continuous but inaccurate antiaircraft fire, also accomplished its drop successfully during the early afternoon of the 16th.

The airborne attack was a complete surprise to the enemy, who had been compelled by the heavy naval and air bombardments to abandon most of Topside and to seek refuge in caves, tunnels and fortified gun positions. In consequence, his resistance was limited to small groups of two or three men firing machine guns and rifles, and the paratroopers were able to seize and organize their initial objective on Topside in short order.

* * *

The success of the assault phase of the Corregidor operation was due to a combination of several things. There was careful reconnaissance; and there was outstanding staff work, which developed a well-regulated approach of troop carriers, a flight pattern and drop plan best suited to the drop areas, a plan flexible enough to permit ready change to meet any situation. There was also close coordination and perfect timing of the action of the forces involved. Excellent support was furnished to both the airborne and amphibious assault elements by naval and air forces. The element of surpise was vital, too. And even more so was the superb performance of the troops and their leaders.

fire. The battalion commander sent reinforcements to him at daylight, and after an intense fire fight, the reserve reached the beleaguered Turinsky and his men, killing 150 Japanese on the way. That same number was counted stacked up around Company D's position. These were Imperial Marines, the best of the island's garrison.

Captain Itagaki, in the mistaken notion that the Americans would first land near San Jose dock, moved back to Topside and was holed up in the cliffs surrounding the drop area. He and many of his staff were killed during the first day's fight by paratroopers who had been blown over the side into the cliffs. His demise was almost poetically just.

When the defenders could no longer muster enough strength to launch coordinated counterattacks, they rooted farther back in their holes or committed *harakiri* in the time-honored tradition of falling on upointed Samurai swords, by hanging themselves to the branches of trees, or in even more spectacular ways.

Malinta Tunnel, a vast labyrinth of underground rooms and corridors, was the CP, hospital, supply rooms and living quarters for the American garrison just before it surrendered the island in 1942. Here the Japanese had stored thousands of pounds of explosives. On the night of 22 February, with the 3d Battalion of the 34th Infantry occupying the top of Malinta Hill, the Japanese set off the dynamite. The resulting explosion tore away tons of rock and dirt, throwing flames and debris hundreds of feet into the air and killing many Americans atop the hill. Uncounted hundreds of Japanese joined their ancestors. Two hundred others were grimly mowed down as they charged out of the tunnel and into the guns of the 34th. Except for the loss of the men atop the hill, the explosion served mainly to make the task of the Americans much easier.

Not the final curtain

Heroes are found in many places, and their valor takes on many forms. Some are quietly efficient in their deeds. One such was Doctor Spicer, the 2d Battalion's surgeon who was attempting to get to the CP of the 1st Battalion. Starting out at night, while in a no man's land between those battalions, he was shot in the stomach by an enemy sniper. As he lay dying in the middle of the unpatrolled area, unable to crawl, he filled out his death certificate, correctly diagnosing his wound, and gave himself the shot of morphine he had administered to many other casualties. When found at daylight next day his certificate was complete except for the time of death.

Even artillerymen, accustomed to firing over the heads of the infantry, moved up to point-blank range. One chief of a 75mm pack-howitzer section expressed the sentiments of all artillerymen on The Rock: "Ain't this point-blank shootin' the nuts? Never thought I'd be firing this howitzer at pistol range."

By the night of 23 February, organized resistance had ceased. Only eight days ago, the paratroopers of the 503d, sitting on the ground of another Philippine island, on the eve of their most spectacular jump, saw a movie which instilled a real fighting spirit: Japanese pictures of the capture of Corregidor. In the succeeding days they played that film backward. With only half the strength of their opponents, they killed 4,773, sealed up 976 in caves, and took 24 prisoners, at a cost of 169 killed in action.

The show was not yet over. The last curtain didn't go down on Corregidor until 2 March 1945. Three years previously, when American prestige was at its lowest point, General MacArthur promised, as he left Corregidor: "I shall return!" No one really believed he would do it in so short a time. On that day, however, with snipers still active, General MacArthur stepped ashore. The last act of the Corregidor show was over.

The image of the Army can best be projected by men who can speak with the

Voice of Experience

J. B. BRISCOE

THE Army, in carrying out a public relations function in all of its indoctrination programs, may well borrow techniques and terminology from the growing field of professional public relations. Fund-raising and publicity experts lay great stress upon their "image studies" in which they ascertain the feelings of a particular group toward a firm or industry. One must know the image of the firm in order to know how to begin to improve relations.

Our troop information program is likewise concerned with the image of the Army held by the soldier. We strive, through Code of Conduct lectures, through films, pamphlets and periodicals, to imbue the recruit with the importance of his duties and to project a correct image of himself as a soldier. All these methods of building images are vital, but there may be a point at which the unit commander can easily improve his entire approach: through proper selection of first-class personnel to deliver the troop information material.

The basic regulations on this subject vest responsibility for troop information in the unit commander, and require that it be delegated sparingly and judiciously. However, the problem of finding proper troop information personnel remains. We have excellent criteria for selection: military experience, Army Information School training, a broad general educational background, and maturity; yet when vacancies occur, persons of such extraordinary talents are not easily found.

Perhaps the qualification of military experience for delivering troop information talks needs to be reviewed and re-examined in the light of what we know of stereotypes and source credibility.

Studies of troop information and education during World War II indicate that attitude toward the intent of the communicator is important in making the message convincing. Since World War II, experiments by psychologists, using high- and low-credibility sources, demonstrate that the same message will be more effective when delivered by a source believed to be authoritative.

Your personal 'public relations representative'

What determines credibility in troop information? Call to your mind's eye the most outstanding fighting man you can remember or imagine. Presumably he would have had considerable experience in the Army, great enthusiasm for it, and would be at least a sergeant. The characteristics of the successful recruiter, and the appeal of the beckoning sergeants in the recruiting posters, would be qualities of the person you would send as your personal "public relations representative" to impress upon potential recruits the mission and character of the Army.

In the initial "shock" of Army discipline, this type of man, "the old sergeant," makes an indelible impression, and when he announces to a new batch of recruits, "I'm going to be your mother and your father," psychologically he speaks the truth.

In addition to training under him and for him, the recruit receives a thorough taste of Army life through day-in-day-out individual training. He may look upon drill and inspection as hazing and harassing at the time, but what continuous soldiering does most of all, beyond keeping a unit in fighting condition, is to pound into each person's deepest consciousness the meaning

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of being a soldier. This forms the bond between the young soldier and his veteran friends. They may have served in many branches, but they have all shared one common discipline. The recruit cannot feel himself a soldier until he has been under the sergeant's tutelage, and the image he retains is that of the old sergeant, who becomes a stern figure to some. For others he represents courage and stolidity, for he is, perhaps, the only person they have dealt with who, after having seen the face of war, willingly remained in the Army. For all, he offers the image of the Army.

We particularly need reinforcement of the image of the Army today, since a very large percentage of soldiers are not in the line units, and by the very nature of modern warfare, an ever-growing percentage cannot be expected to form the cutting edge of the organization. Just as in World War II Bill Mauldin's cartoons were distributed to all units to give each person, no matter how far removed from the front, a vicarious participation in the exploits of the infantry, and to build an image of Army life, troop information must strive to keep up and reinforce the image after basic training.

Sharpening the focus on combat

Troop information, then, increases in importance just as the number of troops in line units decreases in proportion to support troops. The missions of technicians and guided-missiles experts, glamorous as they may be, will seem to be support functions rather than fighting functions the farther removed they are from traditional infantry service.

The image of the Army needs sharpening among office workers. When a recruit is found to possess that most coveted skill—typing ability—he is straightway snatched from the grasp of the direct acting units and moved into an orderly room, a school command headquarters, or a finance office. A total change then takes place in his image of military life. He finds that he could not be treated better. His work resolves into an 0800-to-1700 day, with maybe an occasional inspection. He may even live off post, and become a civilian again.

His only contact with the old discipline is through an occasional tour of KP or a detail, the weekly troop information lecture, yearly physical fitness tests, and weapons qualifications. He takes on a bureaucratic outlook toward the role of the soldier: while the line troops cannot avoid soldiering, he can and does avoid everything possible. In a sense, he feels that he has climbed atop a protective ledge from which he can look down with comparative safety upon less fortunate soldiers.

The task of the troop information program with these soldier-clerks is a difficult one: how is it possible to bring home the character and toughness of the Army when all the toughness, so far as actual experience goes, has been taken out of soldiering?

The Army attempts, through messages on "the mission of the Army" and other subjects, to bring home an important lesson to men who are actually no longer active participants, but managers and paper-shufflers. All too often in the past, personnel shortages have forced unit commanders to entrust this important task to another college-trained clerk-typist, the troop information noncommissioned officer. The authority of this youthful messenger is only naturally something less than that of the old sergeant.

It is ironic that one can find a green soldier, with no combat experience, no line service, without rank or prestige, in fact devoid of any qualification except the ability to type, attempting to explain policy to a mixed group of faithful older sergeants and others.

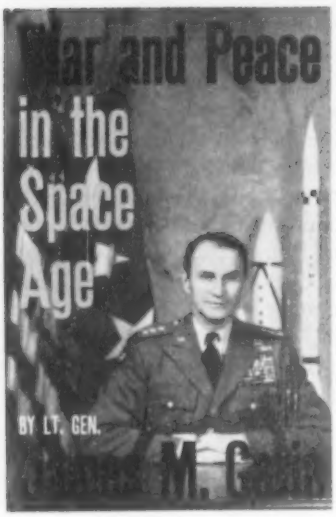
The voice of experience

It would be sound communication policy to assume that the person called upon to be the voice of the Army should be one whose bearing and background fit him for the part. The old sergeant, it would seem, should be that person. Standing before a group, he is a living training aid in the Army's image.

The person to put before the troops should be a veteran, an older man, who is also a powerful and effective speaker. If today's sergeants shy at speaking before a group, this deficiency can be corrected much more easily for them by Army Information School training than can a lack of loyalty to the Army be corrected in the young recruit.

Finally, must we devote *all* troop information periods to talks about the Army? Is it not possible that the image of the Army can be more effectively put across by using the age-old military rituals: parades, inspections, close-order drill, and rifle practice? Here are the fields in which the old Army men have been thoroughly grounded. In a modern army, those who perform specialized tasks so seldom repeat their basic training that rehearsal of these simple practices is for them more important than exposure to another film about the latest developments in missiles.

If troop information is a command responsibility, without possibility of delegation, then the unit commander can lend his prestige and authority to the delivery of the message. But if delegation *is* necessary, the advantage of passing the job to a qualified sergeant is unquestionable.



WAR AND SPACE —AND POLICY

Brigadier General Thomas R. Phillips

LIEUTENANT General James M. Gavin retired from the Army a few months ago "to tell the American people what I think is wrong with the defense picture." He tells it in his current book.

In his preface he declares that he has "tried to avoid calling names," and that "it is a time to close ranks." But he is unable to avoid direct criticism of former Secretary of Defense Charles E. Wilson and some implied criticism of President Eisenhower and others. Gavin has written without bitterness, but any honest narrative of his frustrations with the "New Look" in the Pentagon cannot help but contain unhappy comments about a defense administration that had adopted a one-weapon theory of war and was busy cutting manpower to save money in order to obtain "more security at less cost."

Gavin gives no reason for his decision to retire at the age of fifty-one, with much more responsibility and higher rank in prospect. He is reported to have said that he thought he could do more for the Army outside of it than in. A possibly apochryphal story has it that he discussed the decision to retire with an old Irish friend, who said: "When an Irishman makes a mistake, he makes a big one. You have made the biggest mistake any Irishman ever made."

He declares in his preface that the purpose of his book "is to treat the national problem as an entirety, in terms of space, of the earth, and of the role of all services and the defense establishment that controls them." He admits that it is a large order. In his effort to cover so much ground he has become diffuse in sections and appears to wander off on sidelines through unconscious association of ideas. Nevertheless, much of his writing is sharp and persuasive and some of his material is sensational.

Mr. Wilson's policies

The fireworks explode in his narration of his difficulties with methods used in the Defense Department to force budgetary cuts and his troubles with Secretary Wilson. Gavin declares that "deception and duplicity" were practiced in the treatment of military commanders. He asserts:

¶ "Errors in our over-all military policy portend trouble for the United States, for they bring into question our very ability to wage war;"

¶ "The Soviets have an inventory of ICBMs" that "will constitute their long-range striking force," while "several years will have passed before we have an ICBM capability of any significance;"

¶ "The manned bomber is facing early obsolescence" due to the development of air-defense missiles;

¶ "A hydrogen bomb-equipped B-52 can contribute little more to the solution of a limited local war than a 155mm gun can contribute to the apprehension of a traffic violator."

These are policy errors that he examines at some length. As for Mr. Wilson, Gavin declares that he "tended to deal with his chiefs of staff as though they were recalcitrant union bosses. The thought struck me often that Walter Reuther, under the circumstances, would have been a more effective chief of staff than a professional soldier."

"I have known General Ridgway, after weeks of painstaking preparation, to brief Mr. Wilson with lucidity and thoroughness," he continues. "At the conclusion Mr. Wilson would gaze out of the window and ask a question that had no relevance whatsoever to the subject of the briefing. Among his aides this was known as taking the briefer 'on a trip around the world.' "

Gavin adds that he heard another Chief of Staff say, "he [Wilson] was the most uninformed man, and the most determined to remain so, that has ever been Secretary."

Gavin's critical remarks about Mr. Wilson are understandable, but unfair. The Secretary was taking his

WAR AND PEACE IN THE SPACE AGE. By Lt. Gen. James M. Gavin. Harper & Brothers, 1958. 304 Pages; Illustrated; Index; $5.00.

orders from the President, whom he called sincerely "the greatest military expert in the world." So far as Mr. Wilson was concerned, if the real military expert, the President, decreed that the armed forces could and should be reduced and defense spending cut down, there was no further question. It became merely a problem of how to do it.

Failure to use Joint Chiefs

Mr. Wilson entered his high responsibility believing the campaign declamation about the "mess in the Pentagon." He did not once ask for any advice from the "bad old Chiefs." He relied at first upon his budget director for military advice and later came to depend upon Admiral Arthur Radford (Chairman of the Joint Chiefs of Staff) and Donald A. Quarles (then Assistant Secretary of Defense for Research and Development, later Secretary of the Air Force, and now Deputy Secretary of Defense). With the President as his military expert, Mr. Wilson failed to use the Joint Chiefs of Staff who, by law and as a corporate body, are his military advisers.

Mr. Wilson was not uninformed and, with some exceptions, notably as regards research and development, changed his mind for the better on many occasions. Early in his tenure, he was asked about Congressional legislation to eliminate many commissaries. His reply was that he "had not come to Washington to operate a chain of grocery stores." As study showed how important the commissaries are to military personnel, Mr. Wilson reversed his early uninformed position and actually evaded the intent of the legislation by an interpretation that enabled him to keep almost all of them in operation.

Strange SOP

Mr. Wilson also fought for the Cordiner incentive-pay legislation. He was the first Secretary who learned the tremendous cost of the enormous turnover of manpower in the services and did something about it. In the last budget for which he was responsible he fought within the Administration for an increase. When the decision went against him, he loyally supported the President, against his own beliefs. Wilson also accepted the philosophy of the New Look. And had he not agreed with it, and the President did, he would loyally have gone down the line for his superior.

But the problems of getting professional military officers to accept policies that they sincerely thought were disastrous was difficult, and strange methods were used. Gavin describes his rough experience in trying to hold back the light of the New Look. "In accordance with the philosophy of the New Look," he writes, "a critical cut in this division strength was undertaken at once. First, the Army was directed to include the training organizations in its over-all division strength. The total number of divisions was then reduced to match the old number of combat-ready divisions, so that if you didn't examine the numbers closely you would be given the impression that no reduction had taken place. As the cut back continued, and some concern was expressed on the part of Congress, the Army was directed to regroup its nondivision personnel and thus account for more divisions. For example, forces at Fort Benning, Georgia, were grouped on paper with those in the Panama Canal Zone and called a division. Likewise, forces at Fort Lewis, Washington, were grouped with those in Alaska. To some segments of the press, these became known as 'Wilson' divisions."

Gavin tells of the method of forcing budgetary cuts. "The technique," he says, "was to suggest that another cut in funds, say 10 per cent across the board, was due. When the critical harm that would result from such a cut was pointed out the reply was polite.

" 'The Department of Defense understands how serious the situation is, we realize that you couldn't stand a further cut in either funds or personnel and still meet your obligations. But suppose you go back and think the thing over. Suppose you did have to take a cut, just suppose, how would you do it?'

"A week later," Gavin continues, "or perhaps a few days, you would return with an outline of the implications of such a cut. After explaining it you would be greeted with:

" 'That is very good. I am glad to see you think that way. The program that you have recommended is approved.' "

After one such occasion, Mr. Wilson told the Congress that the Joint Chiefs of Staff had approved the budget, and later retracted after testimony from one of the Chiefs that he had not approved it.

Perilous "missile lag"

"The 'missile lag' period, which we are now entering," he writes, "is one in which our own offensive and defensive capabilities will lag so far behind those of the Soviets as to place us in a position of great peril.

"For quite a few years the manned bomber has been the basis of our retaliatory policy. We have assumed that it has also been the main striking weapon of the Soviets.

As most of our readers must know, **General Phillips** (USA-retired), is the military correspondent of the *St. Louis Post-Dispatch*. He retired from the Regular Army in 1950.

General Phillips and Mr. McElroy in the Defense Secretary's Pentagon office.

"Now, however, the manned bomber is facing obsolescence; it will become obsolete when surface-to-air missiles carrying nuclear warheads are on site (in the Soviet Union) in large numbers. Furthermore, while Russia even now has an intercontinental ballistic missile, several years will have passed before we have an ICBM capability of any significance.

"In short, we are now entering a missile-lag period in which the Soviets will have a steadily increasing ICBM striking capability which we will be unable to match for several years.

"We are in mortal danger, and the missile-lag portends trouble of a serious nature.

"Not just the missile situation but errors in our overall military policy portend trouble for the United States, for they bring into question our very ability to wage war, particularly the kind of limited war that will confront us increasingly in the future."

Of Korea, Gavin says, "The problem was that only total war could bring us victory because we had neglected to develop and provide the technical means of winning anything but a total war, a total nuclear war."

His discussion of the Jupiter-Thor controversy is inadequate, as is his narrative of the Army and Navy satellite decision that went against the Army until Vanguard made a record of failure.

Evolution in mobility

He foresees an evolution in mobility complementing the evolution in firepower. "By 1965," Gavin contends, "jet transports should be available in large numbers, and all missiles and fissionable material used in overseas areas will be flown there. Moving missiles and fissionable material by air is not only tactically desirable but administratively essential.

"But far less exotic than jet transports, but perhaps more important in winning tactical battles will be the small air vehicles of the land forces, both Army and Marine Corps. The development of such innovations as tilt wings, ducted fans and deflected jets will give portions of our land forces a tremendous advantage over an opponent."

As for the Army, Gavin believes that the Pentomic division is seriously lacking in missile firepower and in adequate reconnaissance, like sky cavalry or drones. He would add these elements and remove its large administrative elements, leaving the divisions with purely fighting forces instead of burdening them with both administrative and combat responsibilities.

With a few exceptions, he declares, "all Army divisions should be armored. Armor protection should be provided for all personnel in sustained combat to enable them to operate effectively in a nuclear environment."

Gavin sees airborne troops losing their ability to carry out the type of operation used in World War II and Korea because of the almost total effectiveness of air-defense guided missiles.

He believes "that as rapidly as the Army can do so, it must convert these airborne divisions into the much more mobile sky-cavalry divisions. . . . The parachute capability must be retained so that troops may be delivered in the combat zone (on our side, not the enemy's) without planes having to land on long airstrips."

Clear and persuasive

On the subject of limited war, Gavin is clear and persuasive. He quotes the statement by Mr. Quarles that "if we have the strength required for a global war we could certainly meet any threat of lesser magnitude." He then argues: "This is not true, for limited war in its own way is a highly specialized form of combat, more specialized than general global war. It is as though one were to compare skillful surgery to a killing blow. . . . To assume that SAC can deal effectively with every type of limited action is the same as to assume that since a tank battalion can be used to control extensive land areas, one tank can be used to catch a pickpocket or a car thief."

Gavin says he once heard Mr. Wilson say: "We can't afford to fight limited wars. We can only afford to fight a big war, and if there is one that is the kind it will be." Gavin comments that "If we cannot afford to fight limited wars then we cannot afford to survive, for that is the kind of war we will be confronted with."

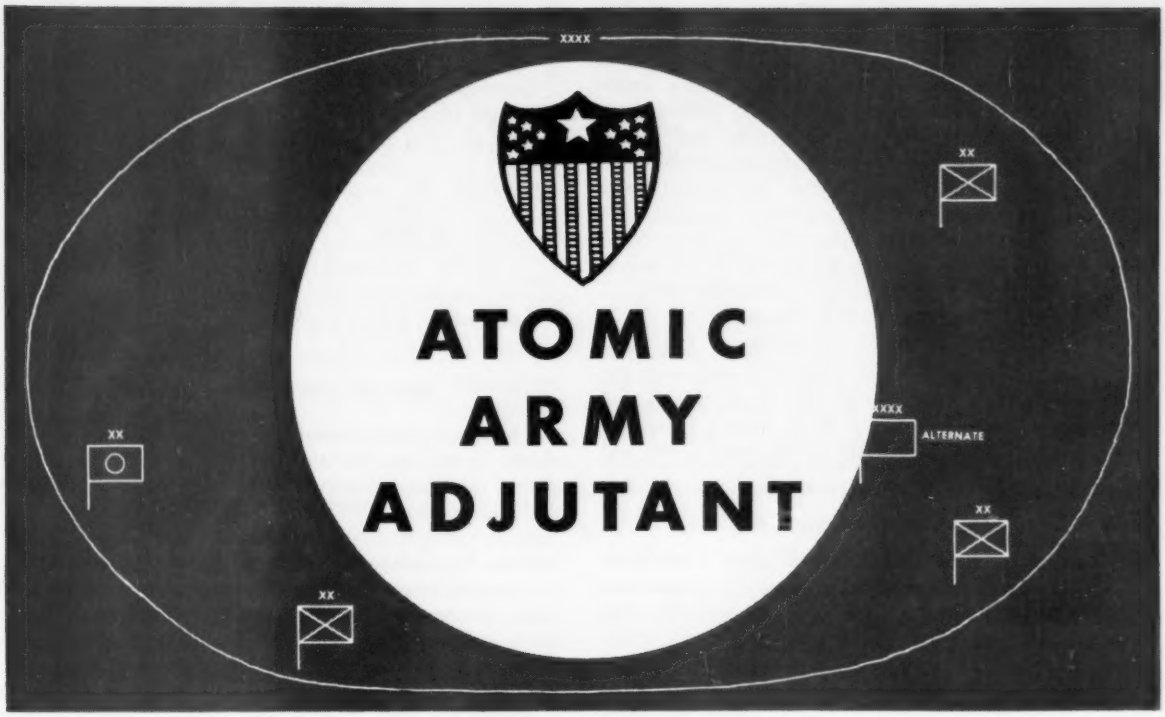
General Gavin considers continents to have become tactical theaters of war by 1965. He sees three such theaters: Europe and north Africa, the Far East and southeast Asia, and North America. He takes a page out of SAC's book and disperses his intercontinental missiles at great ranges from the opponent, and for protection provides for air transport to bring intermediate range missiles up from distant safe storage to firing positions thousands of miles forward.

Imaginative intellectual

Gavin wrote his book in three months. Its unevenness of quality and lack of organization probably result from haste. Nevertheless, *War and Peace in the Space Age* is a book that any professionally interested soldier will read with intense interest and professional benefit.

His vision will be considered by many to be unduly imaginative. It should be remembered, however, that Gavin is an exceptional student of military evolution, that he not only has a firmly based historical understanding of the constant change in military weapons, tactics and strategy, but also has been through the deadly school of combat and has access to developments in weapons that have not yet reached public knowledge.

General Gavin is an imaginative intellectual who never went past eighth grade in school until, after enlisting in the Army, he took the preparatory course for West Point and passed. His life is deeply bound with the Army. He is just the type of imaginative and forward-looking officer most badly needed in the services. His retirement, it seems to me, is a tragedy—both personal and national.



Colonel Kenneth G. Wickham

The problem of paper work in the atomic Army is to get the most out of it without being submerged in it. It's as true in this atomic age as it was in B. A. (Before Atomics), that "if you can't administer, you can't fight."

IN the light of the concept projected by General Bruce C. Clarke in his article, "Design for an Atomic Army" [ARMY, January 1958], it's time each of us speculated on what his mission will be during the time frame of 1965-70, and how he can perform his tasks in the field army of the future. While administration and its accompanying headaches are the responsibility of a command's adjutant general, everyone—even commanders and staff officers busy with major problems in tactics, operations and logistics—must share in their successful solution.

To the combat leader paperwork is an annoying and sometimes agonizing burden. Yet its end product—ready information and records—has always been and remains essential. Memory is still fresh of World War II units which hit the beach imbued with the commander's philosophy of to-hell-with-administration-let's-fight-the-war, resulting in lagging administration which slowed or halted the fighting progress. Units have been known to declare operational holidays in order to catch up on administration. There is fundamental truth in the statement made some years ago by a seasoned combat division commander: "If you can't administer, you can't fight." Nothing in the trend of combat developments since World War II justifies a contradiction. How can we acquire administration's product—available information—more rapidly and in more accurate, more usable form while reducing the burden of its procurement, storage and distribution?

Colonel Kenneth G. Wickham, *Adjutant General's Corps,* is on duty in TAGO. A graduate of USMA, during World War II he was with the First Special Service Force and was Chief of Staff, 45th Infantry Division, in France and Germany.

What administration must provide

First let's decide what essential information and services the commander, his staff, and the members of tomorrow's field army must receive from their administrative forces. Simply stated, those services involve the processing of personnel records, clerical service at the various headquarters, production of publications, management of records, and postal services—not to mention service that may include payment of troops.

We must procure, classify, reclassify, assign, transfer, promote and demote, decorate, punish, hospitalize, record casualties and POWs, and bury the dead. To record these actions we will have to design, standardize, produce and

distribute forms, along with instructional manuals that must be written, edited, printed, distributed and stored. People and units will continue to need records which require sorting, disposition and sometimes long retention. Commanders and headquarters will publish, authenticate and distribute orders, instructions and memoranda. Incoming and outgoing correspondence must be controlled and answered. Public officials, parents and others will write and demand replies. There will be messengers and couriers, and classified documents must be safeguarded. Personal mail—the contact with home—will be as important to the future soldier's morale as it was to his father's—perhaps more so if the homeland has been hit.

What, then, have we eliminated? Nothing. The adjutant general of tomorrow's field army will deal with the problems of people who have all the needs, desires and concepts of individual dignity as those serving today. He must meet their needs with fewer people, more speed, and under more trying conditions.

The changed conditions

Let's return to General Clarke's field army of two hundred thousand with its command structure, its combat and support elements, and its operational concept. Between his written lines new battlefield factors affecting an army's administrative operations can be discerned. This army's troop units, support installations and headquarters will be dispersed, and almost constantly moving about. No headquarters can homestead in some comfortable old castle, nor can a division's combat units long remain in a village or around the same hill. Both the enemy's and our forces will have refined methods for identifying and promptly striking atomic targets. Immobility invites these dubious attentions. Obviously, problems of knowing at any instant exactly where each unit and headquarters is, and how to make contact with them physically, will have increased. The army's internal ground and air transportation may have improved greatly, but the demands for their use for absolutely essential items will have increased tremendously—as will their vulnerability to improved surveillance and weapons. The impact of these conditions upon the AG's operations becomes obvious. Administrative processes and services will have to function with far less transportation for hauling equipment and personnel, or for the forward servicing of using units. The AG's equipment will have to be compact, light, readily mobile and quickly assembled after a move. Administrative help will be fewer, and must be inured to self-sustaining, semi-isolated operations.

Essentials of solution

Notwithstanding the undiminished requirement for information and service, and the magnified problems in providing them, there is no reason why we cannot provide efficient administration in the future field army. This anticipation rests upon three factors: improved communications, new or improved administrative equipment, and the changes we must make in our philosophy.

The army envisioned by General Clarke requires a master grid signal system which is essential for effective, dependable command and control, and necessary for administration with frugal means. If the commander expects good administration in such circumstances, he must insure that his grid communications system is of a capacity that will permit his administrators to use it as the major medium of physical or written contact with units and persons. Other new equipment will enable administrators to more effectively perform their tasks.

Developments in communications, transportation, weapons, and office machinery have come at a startling rate during the past fifteen years, because of concurrent developments in electronics, photography, metallurgy, and other fields. The result has been a flow from industry of machinery of all types and capacities which can be adapted to military administrative tasks. This equipment, integrated to a flexible communications network within the field army's structure, promises the hope of better administrative services while reducing greatly the time, personnel, and transportation required.

Ease the commander's burden

Changes in our philosophy do not come easily, as history shows. If we trust the unit commander to succeed in his part of the battle mission, why can't we trust his judgment and independent action in administering his unit? We have in the past. Can't we eliminate some boards, certifications, documentations, inspection reports, and only the commander knows what, that we inflict upon him now? Can't we cease telling him from above how to do everything in detail? Why not rely upon his training in fundamentals, his judgment, his honesty, his sense of responsibility to his men and his superiors, and allow him to command his unit? Such changes will do much toward reducing paperwork. Even with this fundamental change, higher commanders would still have opportunities to visit lower units to offer guidance, gauge effectiveness and, if need be, to fire incompetent commanders. There is good reason for believing that junior commanders have potentials we do not now exploit, and that they would be more resourceful, competent and contented if allowed greater responsibility and more freedom. Finally, for the combat commander in the atomic army, we can provide a few trained assistants who would record his administrative decisions, distribute them internally or transmit them electronically to other headquarters and provide the few temporary records he will need on which to base future plans and action.

Do with fewer luxuries

In addition to these changes, the future will bring others which will affect both citizens at home and those in the nation's field forces. We must curtail the services we provide the combat soldier, and he and his family must face the fact that we simply cannot afford some luxuries of the past. For example, mail delivery may have to be restricted to letters. The transportation and personnel required for forwarding holiday packages, money orders, and reading matter to soldiers in the field may be unsupportable. Similarly, the administrative effort involved in paying troops in cash and then converting it into postal orders is unwarranted. Pay will have to be allotted or deposited, and only the minimum pocket cash provided. Many benefits would result from these acceptable curtailments. Finally, the volume of "individual case" personnel actions must be reduced. Servicemen, families and officials will be more inclined to accept such changes when the threat of injury hangs over the family at home as well as over the soldier in combat.

There must be a marked reduction in written records

in combat and supporting units. The circumstances of operations and the need for mobility in the atomic field army require that each soldier's effort physically contribute to the success of his unit's combat mission.

When the maximum of written administrative work is done as far in the rear as possible, the mobility of forward units is enhanced, more complicated machines can be used in rear areas, and the risk of destruction of essential records and data is reduced, with a consequent saving in cost of administration. Equipment and communications must be deployed so as to leave the maximum of administration in the zone of the interior and at successive rear areas in the theater of operations. Information need be recorded manually only once; machinery should perform the subsequent collating and duplicating tasks. Extra copies can be supplied by rear to forward. We must accept the maxim that the impetus of administrative support, like that of supply, is from rear to front.

Organized to operate

The atomic field army may find its adjutant general and the few troop units he controls at and near army rear, under the general supervision of the deputy chief of staff for administration. The AG's office would maintain small forward echelons at both army main and army alternate to provide administrative information and services to commanders and staffs located there. The army support command and each combat division headquarters would have an AG section for intra-unit administration, under the technical supervision of the army adjutant general. This would insure closer integration of administrative equipment and information within the army's entire area. The links in the chain of administrative command would be: army, division, battle group, company.

The most important media for personnel information and accounting would be electronic machines linked to an automatic data processing system (ADPS). Units of these would be in each combat division, at army rear, and at army support command, and possibly at other points, depending upon the command grouping of the army's support units. Tapes in these machines would preserve information on each person within the army, and entries could be up-dated rapidly as changes occur. Data could be extracted, reproduced or analyzed as required, errors reduced, speed increased, and personnel requirements diminished. Such a linked system could also insure reasonable safety of data by electronic duplication at alternate headquarters; for example, each of two widely separated divisions could record the personnel data of the other.

The division AG could supply the company commander with a card for each soldier, detailing the essential data required, to serve as a temporary record. When a soldier departs or his status changes, his card is destroyed or a new one issued. When a soldier is gained, the division AG automatically provides a card for him. Personnel changes can be reported orally or electronically to battle group headquarters. This does not mean the company commander could not exercise a wide range of administrative authority over his men; it means he would be freed of the paperwork involved in processing the changes he directs.

The battle group commander can operate similarly. Division AG could provide him with personnel data, analyses and forecasts. Records would be few, all machine-produced, and all temporary. He too can still exercise command authority, doing so orally through his adjutant, the administrative link between company and division.

At division headquarters, personnel actions would be recorded on ADPS tapes, and from these would be prepared reports to higher headquarters, information for the division commander and his staff, and temporary records and data for the use of battle group and company commanders. If we liberalize our concepts, most personnel actions could be accomplished through this oral-mechanical-electronic network within the division. We would not need a soldier's signature nor that of his company or battle group commander on paper in order to process a change. We merely properly record the official change and see that all concerned are promptly and accurately informed. In lower units, we could eliminate the morning report, make transfers, promotions, demotions, reclassifications, record awards and punishments, compile personnel requisitions, and execute a variety of actions without resorting to paper.

Reduction of paper

We have equipment that will simplify current files and records operations. Documents that must be referred to later could be microfilmed by the AG at army rear, and only the negative retained. If division and other subordinate units provide one copy of self-generated records important to army rear for photographic filing, then all records of forward units can be temporary. In those units records could be retired by destruction. Copies of those whose recall is necessary could be provided by army from its photo file.

Under the concept of returning authority to the lower-unit commander, much of what we now reproduce in memoranda and bulletins can be dispensed with. Enough copies of what are essential for publication can be provided to meet the needs of subordinate units. Similarly, other publications and blank forms should reach using units automatically, in the numbers required. Photographic and other duplicating processes should be employed to the maximum at all headquarters to reduce the manpower required for reproduction on paper.

Essential mail could be airdropped by base post office to battle group. Assignment of APO designators to each battle group and comparable units would facilitate delivery. Outgoing and undeliverable mail could be returned in containers to base post office for directory service and onward processing. Restriction of mail to letters, provision for free postage, and elimination of the voluminous money-order business would realign the mail service to meet the basic requirements of the atomic field army without unduly expending logistical effort.

The atomic field army will require most of today's administrative services, but they must be far speedier and more accurate, and require less total effort. The mechanical-electronic equipment to meet the administrative needs of the future field army is now, or will shortly be, available. It remains for us to use this equipment, to integrate it into a system, and to modify our concepts and methods so that we can efficiently accomplish our administrative mission. Realization of the goal demands the cooperative efforts of commanders, adjutants, and all soldiers for whom administration serves. Happily, progress is being made in this direction.

BATTLE DRILL DURING BASIC TRAINING

BRIGADIER GENERAL MORRIS O. EDWARDS

UNTIL about a year ago there was lack of real understanding at some training centers regarding practice in fire and maneuver by squads in the offense. Generally, trainees were taught simply to line up As SKIRMISHERS and to move forward to the assault. For safety reasons, great stress was placed upon getting them on line, and upon executing assault fire. Within the squad, fire-and-maneuver was taught but not generally practiced. Any squad maneuver usually resolved into a series of rushes by individuals.

There were three reasons for this: the safety factor, always present when live ammunition is used; the notion that basic training is for the individual soldier and the idea that fire-and-maneuver belongs in more advanced unit training; and the rather strong feeling in some quarters that while there may be "movement" by individual men of the squad, normally the squad's *elements* will not "maneuver."

Great care must be observed when live ammunition is used, but fire-and-maneuver *can* be practiced safely. Where range fans do not permit both the fire team and the maneuver element to use live ammunition, one of them can be issued blanks.

As for the second reason, while it is true that the individual training of the soldier is and must be stressed during basic training, particularly during the first eight weeks, he must be taught to operate as a member of both fire team and squad. I am convinced that there is no reason for not combining our individual and realistic small-unit training, and that good tactical habits cannot be inculcated too early.

It seems to me that the question of whether a fire team is too small a unit to maneuver is merely academic. From observation and experience I would say that maneuver within the squad not only is essential on rare occasions, but on *many*. However, I do not question that training in the use of maneuver is far more difficult than merely teaching employment of the squad in line. If it be true that occasions for using maneuver in combat arise only rarely, then it is vital that *all* squads be skilled in using it. Colonel William E. DePuy, in "11 Men, 1 Mind" [ARMY, March 1958] makes a persuasive case not only for fire-and-maneuver training, but for a single SOP of set plays or drills.

Battle drill is not new

When seeking a means of dramatizing fire-and-maneuver we adopted a reasonably old but (until last year) never officially blessed device: battle drill. The 63d Infantry Division, my World War II outfit, along with a number of others used it (three teams instead of two) successfully in Europe. These were the Able-Baker-Charlie teams, whose habitual formation was the squad diamond. Able covered the front, Baker the right, Charlie the left (one man of Charlie covered the rear). After extensive parade-ground drills, all infantrymen, combat engineers, certain artillerymen, signalmen, and other troops, were required to go through a series of squad runs. These were tactical terrain exercises where the squad acted as point, flank guard, combat patrol, and the like, and had to overcome a specified enemy by fire-and-maneuver.

Some units used battle drill during the Korean affair, and some have used it since. Major General James C. Fry, in his book, *Assault Battle Drill*, relates the suc-

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Brigadier General Morris O. Edwards, *USA*, recently completed a tour as Deputy CG for Training, USA Training Center (Infantry), at Fort Ord, Calif., and is now Chief of Staff, Alaskan Command. He has served in many infantry units (including combat in ETO) in capacities ranging from platoon leader to assistant division commander, and in staff positions such as G5 of Seventh Army and of Army Forces Far East, and Deputy Commander of Korean Civil Assistance Command.

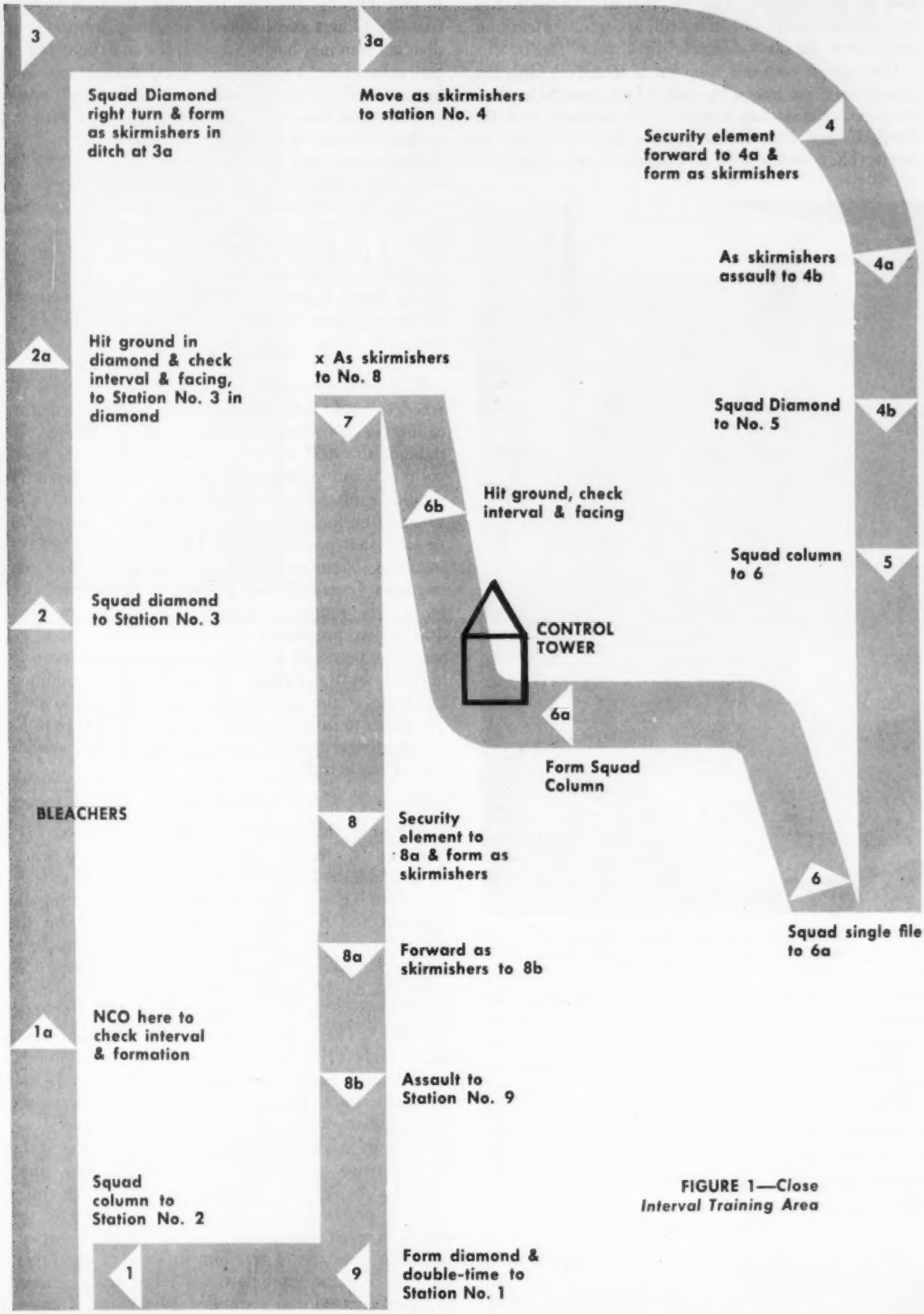


FIGURE 1—Close *Interval Training Area*

cess of his division. The 3d Infantry Division has trained extensively in battle drill, apparently including with theirs the plays described by Colonel DePuy.

Concurrent with our adoption of it at Fort Ord, the experimentation troops controlled by Combat Development Experimentation Center (10th Infantry, now 1st Battle Group, 10th Infantry) have also used it extensively. There seems to be no doubt that it is a fine and

In battle drill training, the soldier moves cut outs of soldiers over terrain board

even essential element of combat-unit training. But should it be included during basic training; if so, when and how?

Before we could proceed, we sought the answers to several questions. When do we begin this training, and what form shall it take? How much time shall we allot it, and what, if anything, was to be given less weight? What training texts are available? Do we have enough trained instructors? Are adequate training areas available?

When to begin?

There was a decided difference of opinion among our training-unit commanders as to when to start. All agreed that the subject was a good one for including in unit training, but some felt it had no place in basic training. Others said it should be part of advanced individual training, but not during the first eight weeks. Still others (and I was one of them) thought it should begin as early as practicable during the first eight weeks of individual basic. We were also confronted with the problem of training two types of soldiers: Active Army replacements, and Reserve Forces Act or six-month men. Since the RFA infantryman would be with us for his full six months, there appeared no question but that, for him, the sooner battle-drill training commenced, the better. As for the Active Army men, we decided to experiment by having one or more companies begin battle drill during the first eight weeks, and one or more commence it during the second eight.

How much time?

When we considered the amount of time to be devoted to battle drill, we did not feel justified in cancelling or curtailing any other subject. Rather, we thought the drill must be considered from the viewpoint of assisting the proper tactical training; that stress should be placed on fire-and-maneuver rather than on straight-line formations. So we decided to use for battle drill that portion (about half) of tactical training involving offensive tactics. We also decided to allot one hour (two half-hour periods) of dismounted drill for parade-ground or close-interval practice in battle drill. As we progressed, we found that in order to get across the necessary demonstrations and preliminary application by the trainee, we had to use, in addition, two hours of the commanders' time. This would allow the soldier to fully appreciate and get the most from his parade-ground training as well as the tactical application of battle drill.

Training aids

At first we based our lesson plans on General Fry's book. At the same time we asked The Infantry School for available training texts. We were gratified to learn that Benning was then in process of submitting for approval and publication a training circular on the subject, a copy of which the Commandant most generously furnished. This was released as Training Circular 7-2 on 14 January 1957, and has been incorporated into CONARC's Training Text 7-10-2 (February 1957). There was no detailed training film, so we began with TF 7-1868 (Fire and Movement Fundamentals and Squad Employment). This film is fine for the training of instructors because it shows the fundamentals of fire-and-maneuver by fire teams; however, for us it had the deficiency of not identifying the fire-and-maneuver elements as fire teams. Also, there seemed to be excessive emphasis on assault fire and a tactically unsound combining of the two teams for the assault in what looked like a frontal attack. However, we made good use of this film in some of our initial training. For the most part, we relied upon demonstrations directed and controlled by division. Demon-

FIGURE 2—SCOPE OF LESSON PLANS ON SQUAD BATTLE DRILL
During Basic Combat Training
(ATP 21-114)

ST-1a. Introduction to squad battle drill. A two-hour problem to introduce the soldier to the basic principles of squad battle drill and fire-and-maneuver. The first hour is a conference and demonstrations of fire-and-maneuver and development of squad battle drill. The hour opens with a brief review of the rifle squad's organization and combat formations, arm-and-hand signals, terrain study, fire-and-maneuver, and battle drill. After this explanation, two-man drill, fire-and-maneuver, and squad MANEUVER RIGHT (LEFT) are demonstrated. The second hour is devoted to practical work in close-interval squad battle drill.

DD 19, 20. Half of two one-hour periods of dismounted drill devoted to increasing the time for practical work in squad battle drill before the soldier is scheduled to run the problem in squad in attack. The unit is divided into equal groups: one reviews dismounted drill while the other practices close-interval squad battle drill. The squad plays for MANEUVER LEFT (RIGHT) are stressed in DD 19 and 20, respectively.

ST-2. Squad in the attack. An eight-hour problem to familiarize the soldier with preparation for the attack, squad attack order, and conduct of the attack. The problem is divided into two four-hour phases. Phase I is a one-hour conference and demonstration followed by three hours of application in preparing for and conducting a rifle squad in the attack. Normally the company is divided into four groups: one running a lane for MANEUVER RIGHT, one for MANEUVER LEFT; a third group runs a concurrent training station on action on contact, while a fourth runs a concurrent training station on assault and reorganization. Phase II, in the afternoon, continues the practical work in which squads conduct attacks over varying terrain, stressing battle-drill plays. Again, two main lanes are used, and this time each has two objectives. Appropriate concurrent stations are also employed. The final fifteen minutes are used for a brief examination and critique of the entire eight-hour problem.

strations depicted both squad and platoon battle drill for commanders and other interested officers. Then each major command was required to train its own demonstration units.

While over a period this led to the proper indoctrination of young officers and noncommissioned officers, the proper teaching of large companies required more trained instructors than we could spare. This brought up the question of how to organize our training. Obviously we could not afford the luxury of having each squad leader train his own unit. We just didn't have that many noncommissioned officers. So we had to set up centralized teaching where a few trained instructors could control the class through loudspeakers. We staked out training areas, rehearsed demonstration teams, and made full use of few instructors and selected trainees. *Figure 1* shows the layout of a close-interval training area.

Training sites

In the beginning we thought that making full use of our dismounted-drill fields would solve the problem of suitable areas. However, these proved too small to accommodate companies of from 200 to 250 men, even using close intervals for drill-field type of instruction. One solution was to split a company, one half using a drill field for its dismounted drill, the other using a nearby field or area for its close-interval battle drill. This went on for a half hour, after which the two classes changed fields. At the same time, some of our outlying training areas, with their fairly wide open spaces and some cover, were adapted to accommodate battle drill.

An early obstacle to full use of the drill was lack of experience in terrain appreciation by some members of our permanent party. The answer was more training that fully utilized tactical walks, training exercises, sandtables, and other devices.

We closely observed the training of our experimental companies for a full cycle, and then made modifications based upon our experience. We concluded that the third week was too early for introducing this training, but that it was sound to do so during the fifth week of the first eight—within our capabilities, of course. This really paid off in more realistic tactical training, and worked for both Active Army and RFA soldiers. Earlier than the fifth week was not too satisfactory, because the soldier was not yet ready. The second eight weeks was a satisfactory period for introducing it, but there was no good reason why it could not have been begun earlier, and then continued during the second eight weeks (and for RFA men, during the last six).

The program

Here is our present program (*Figure* 2 shows scope of lesson plans during basic combat training):

¶ Two hours of demonstration and practical work during the fifth week, right after the trainees have had a four-hour block of instruction in combat forma-

tions, arm-and-hand signals, and the like, for the squad.

¶ Immediately afterward, during the fifth or possibly during the sixth week, two half-hour periods of close-interval training in conjunction with dismounted drill. An alternative solution is to take this one hour of dismounted drill and add it to the previous two hours.

¶ During the seventh week, an eight-hour block of tactical training involving the squad in the attack.

¶ Appropriate integration of battle drill with other tactical exercises; for example, technique of fire, concealment and camouflage, scouting and patrolling, close-combat course.

Focus on variables

At first we used the eleven-man squad only for Active Army soldiers, retaining the nine-man squad for the reservists, for we knew their units would not convert to the Pentomic structure for some time. This caused some difficulty in using training and other facilities, so in March 1957 we prescribed the eleven-man squad for all. This was approved by a CONARC directive on 4 September 1957.

Since training time was limited, we had to focus on what we felt were the most important variables in our practical work. For example, we stressed maneuver through the use of protected routes or by creeping and crawling, rather than through movement by individual or team rushes. We felt that soldiers got enough movement by rushes in other training, such as day and night movements, technique of fire, and close-combat course.

Also, we eliminated the frontal attack and trained only in plays involving MANEUVER RIGHT (LEFT). We tried to select terrain over which the maneuver element could advance under cover to positions on the right or left of the target—if possible, within hand-grenade range of the enemy. Where this was done, the fire-support element could continue to engage targets until its fire became masked. Then it quickly joined the maneuver team on the objective to consolidate and reorganize. In this way we stressed an envelopment of at least ninety degrees, and habitual use of rifle and hand grenade by the maneuver team followed by a quick rush to the target where feasible, rather than long stretches of assault fire. Thus, on a MANEUVER RIGHT which attacked an area objective, the fire team executing the maneuver would sweep clear across to the left of the objective (covering from 9 to 12 o'clock). The fire team acting as the base of fire would rush forward to the objective after its fire became masked to take the right of the objective (from 12 to 3 o'clock) in consolidating and reorganizing. Notice that the paths of the two teams crossed. We also stressed use of prearranged whistle and arm signals for the several plays.

When we were short of trained instructors, check lists for each assistant instructor proved most helpful. Instructors were stationed at critical points in the lane

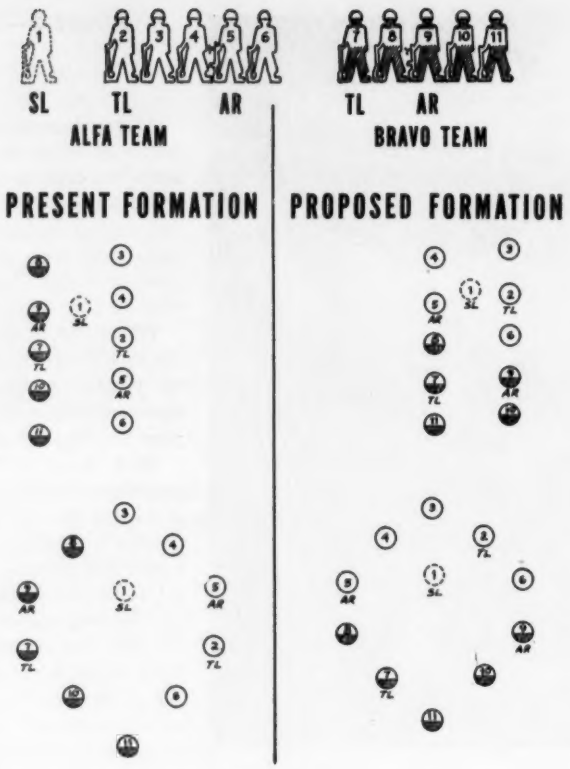


Figure 3

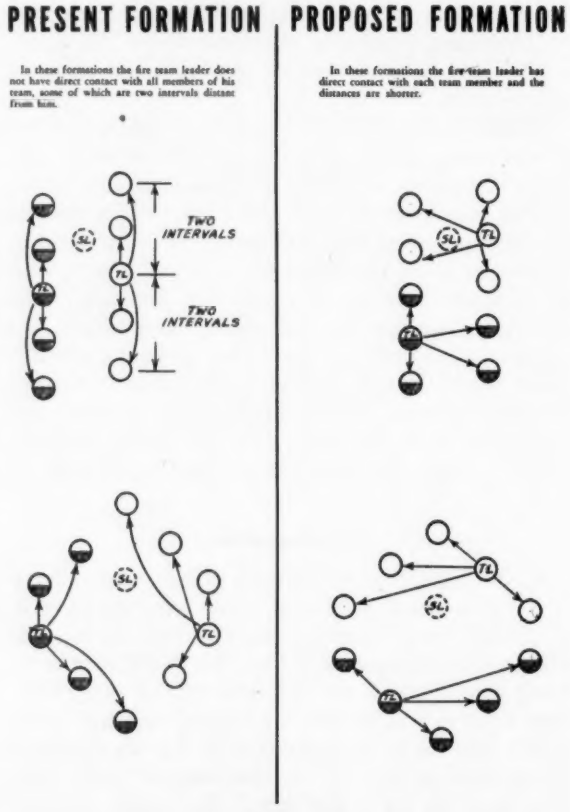

PRESENT FORMATION
PROPOSED FORMATION
In these formations the fire team leader does not have direct contact with all members of his team, some of which are two intervals distant from him.
In these formations the fire team leader has direct contact with each team member and the distances are shorter.
TWO INTERVALS
TWO INTERVALS

Figure 4

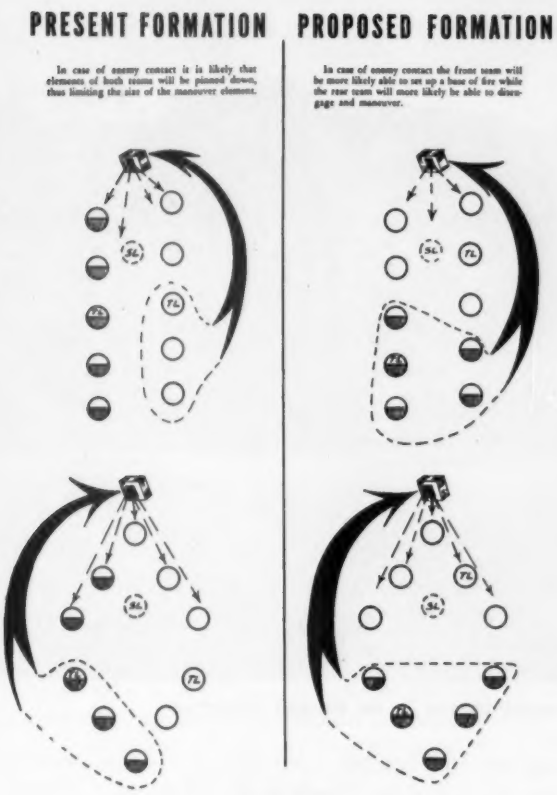

PRESENT FORMATION
In case of enemy contact it is likely that elements of both teams will be pinned down, thus limiting the size of the maneuver element.
PROPOSED FORMATION
In case of enemy contact the front team will be more likely able to set up a base of fire while the rear team will more likely be able to disengage and maneuver.

Figure 5

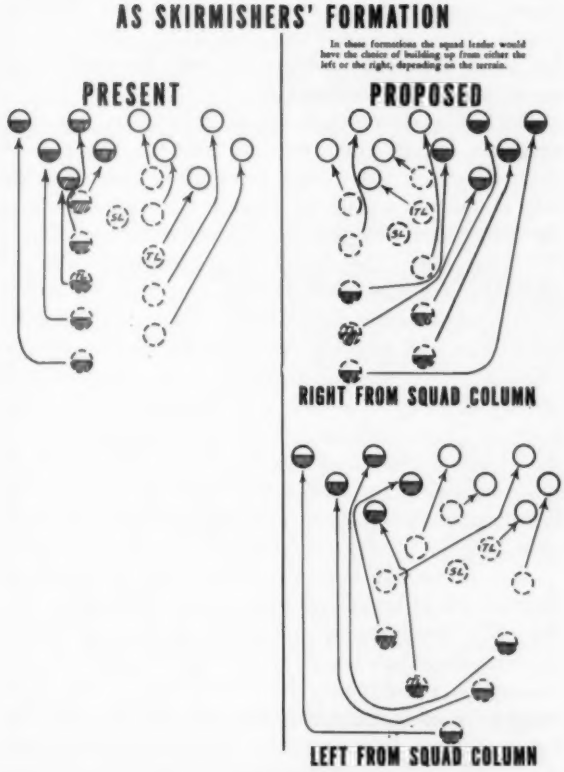

AS SKIRMISHERS' FORMATION
In these formations the squad leader would have the choice of building up from either the left or the right, depending on the terrain.
PRESENT
PROPOSED
RIGHT FROM SQUAD COLUMN
LEFT FROM SQUAD COLUMN

Figure 6

when there were not enough of them to assign one per squad. From their positions they observed each phase of the problem. If gross errors were detected the problem was halted and corrections made on the spot.

Review essential

We found that occasionally during advanced individual training we had to review squad battle drill because it was not being taught at other posts where some of our trainees had undertaken basic training. This proved not too difficult, since we have twenty hours of squad in the offense, including a night-attack problem and a live-firing exercise.

From squad training we proceed to platoon battle drill in all platoon offensive problems. These include live-fire and blank-fire exercises involving the platoon in day and night attack, live-fire tank-infantry assault, and attack of a fortified area. Some of this training is at Fort Ord, some at Hunter Liggett, seventy-five miles to the south.

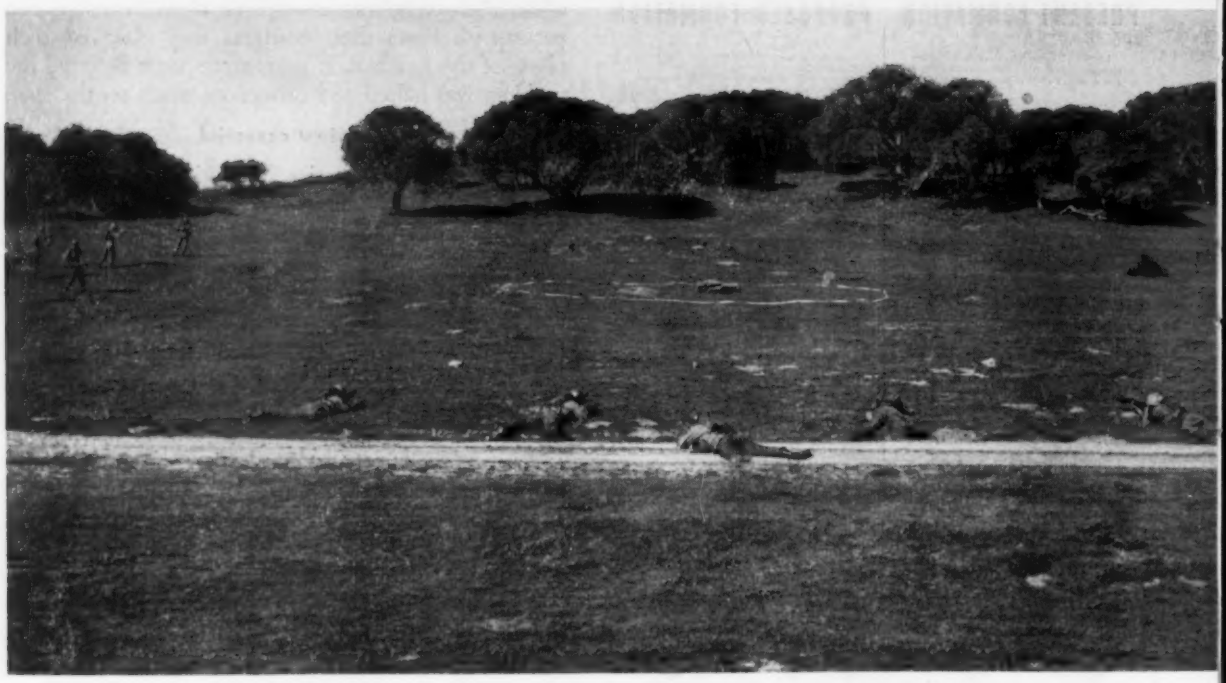
Ordinarily trainees spend two weeks of the second eight of field training at Hunter Liggett. It was found more expedient to lump the field training of RFA soldiers into a three-week period at Hunter Liggett during their final six weeks of basic unit training. These troops live and work entirely in the field during this period, and all training, including bivouac, messing and others, is under simulated combat conditions.

During our last review of training, we decided to inject appropriate battle-drill situations into the proficiency tests for both basic and advanced individual soldiers. This added emphasis to the battle-drill training, and allowed commanders and troops to note the progress being made. In the basic training test we substituted a battle-drill station for the station on assault fire prescribed by ATT 21-2. To represent the members of this squad we used sets of eleven model soldiers, and a movable terrain board type of layout tested each soldier's execution of battle drill (See cut on page 42).

We used a suitable piece of ground for the advanced individual training test. This test included the approach march, the attack which requires execution of MANEUVER RIGHT (LEFT), the assault, consolidation of the objective, and reorganization. In conducting this test we used one umpire as squad leader, and two as team leaders. Each umpire could observe four men and grade their proficiency in battle drill, arm-and-hand signals, and other individual skills associated with the squad in the attack.

Improved squad formation

One benefit derived from our training and experimentation is the feeling that we have improved the disposition of the squad. The officer in charge of our tactics committee suggested the adoption of a squad formation which places one fire team behind the other instead of parallel to each other, as is now done. (Others, including Colonel DePuy, concur in the desirabil-



Practicing close interval maneuver left, squad moves in on assault objective

ity of this scheme.) His suggestion was forwarded to CONARC and adoption recommended. Note that the proposed system *(Figure 3)* allows greater flexibility in case of enemy contact.

Using the proposed system, the leader of a team has direct control of its members, because none is more than one interval from his leader. Our present scheme places certain team members two intervals from their leader *(Figure 4)*.

Greater flexibility is gained by using the proposed system in case of enemy contact, because the front team will more likely be able to set up its base of fire while the rear team will more likely be able to disengage and maneuver. If they followed the present scheme, contact with an enemy to the front would pin down members of both teams, thus reducing the size of the maneuver element or causing it to become mixed with members of two teams *(Figure 5)*.

The proposed system further enhances flexibility by allowing the squad leader to build up his skirmish line to either right or left, depending on the terrain or the situation *(Figure 6)*.

Result: effectiveness in combat

We feel that the introduction of elementary battle drill during basic training, for both squad and platoon, is sound. Squad battle drill should be integrated with instruction in squad formations during about the fifth week of the first eight. Platoon battle drill should be taught along with platoon tactics throughout the advanced individual training phase for infantrymen, continuing into basic unit training for RFA soldiers. Of course, not all aspects of battle drill can be taught during basic training, but in our opinion, the fundamentals can and should be. We think that by stressing MANEUVER RIGHT (LEFT) and avoiding the frontal attack during training, we dramatize for the soldier the necessity of evaluating and properly using terrain. We also constantly stress, so that it becomes firmly implanted in his mind, the vital necessity for both fire *and* movement, and their coordination.

With the eleven-man squad, it appears not only desirable, but essential, that all units use this type of drill. In effect, today's fire team plays somewhat the role of the old squad; in a sense the squad portrays the old section of bygone days. Brigadier General David W. Gray, in "The Angels Flex Pentomic Wings" *[ARMY,* February 1958], points out that fire teams must operate semi-independently. One conclusion he drew from the training test of a Pentomic airborne division in Europe was that "the squad leader could usually control his squad only through his fire-team leaders. Thus, without intent, an additional link in the chain of command has been created. . . . With few exceptions, the smallest unit of movement was the fire team, with one team covering the advance of its twin."

Two incidental but nevertheless highly important benefits are to be gained from using battle drill: (1) the early development and training of team leaders in controlling their teams, and of squad leaders in controlling and coordinating their two teams; (2) the rapid integration of replacements into the squad during active operations. In my opinion, battle-drill training can result only in more effective leaders and units in combat.

From MINIATURIZATION to Micro-Miniaturization

Brigadier General Earle F. Cook

A four-stage transistor amplifier with 18 parts

IN the continued striving for miniaturization of military electronics and communications equipment, the Army is making every possible effort to reduce the size and weight of components and of complete equipment, from portable radio sets for infantrymen, all the way up to complicated components for satellites in space.

The Army Signal Corps has long recognized the need for small size, bulk and weight, and has engaged in research jointly with industry for many years. This program originally led to the development of extremely small capacitors, resistors, transistors, and other diminutive parts and components. But although many advances were made over the past ten years, there was and is today a further requirement for even greater progress in miniaturization.

The solution, now well into the early stages of research and development, is *micro-miniaturization* and the use of *micro-modules*.

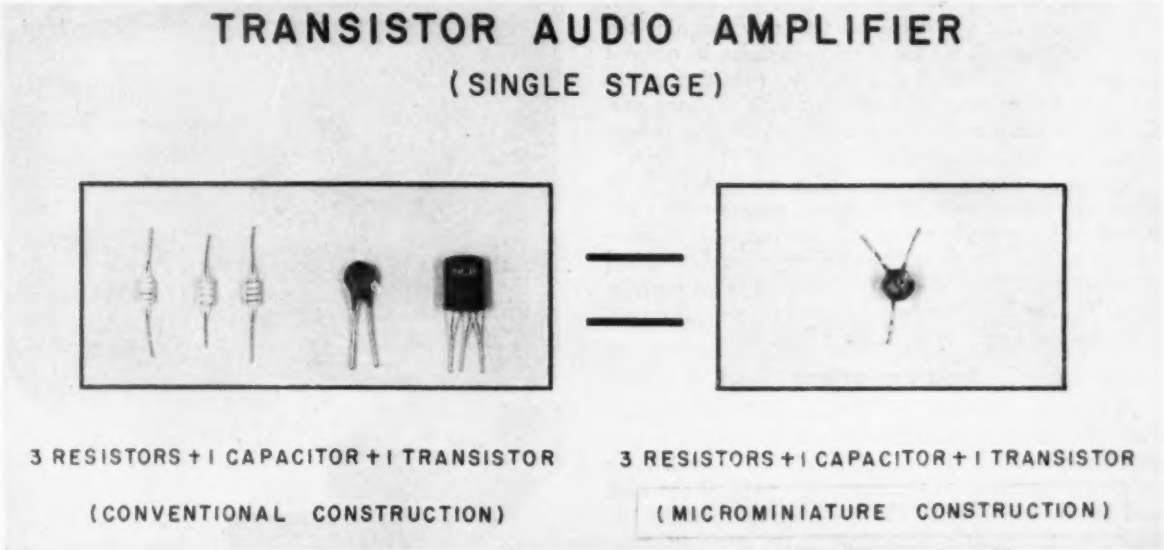
So important is this particular development that it will ultimately affect all types and kinds of electronics and communications equipment of all arms and services of the Army, whether used by infantry patrols, Nike missilemen, or in satellites in space.

Brigadier General Earle F. Cook, *USA,* is Chief, R&D Division, Office of the Chief Signal Officer. During World War II he was in Signal Corps Intelligence and commanded the Army Security Agency in Europe. General Cook also wrote "What's What With Transistors in the Army" (March 1957) and "Electronic Building Blocks" (February 1958) for us.

Micro-modules

Micro-modules are extremely small assemblies, composed of all the elements necessary to make up a complete

Figure 1. *Comparison of conventional construction of transistor audio amplifier with microminiature construction.*


TRANSISTOR AUDIO AMPLIFIER
(SINGLE STAGE)
3 RESISTORS + 1 CAPACITOR + 1 TRANSISTOR
(CONVENTIONAL CONSTRUCTION)
3 RESISTORS + 1 CAPACITOR + 1 TRANSISTOR
(MICROMINIATURE CONSTRUCTION)

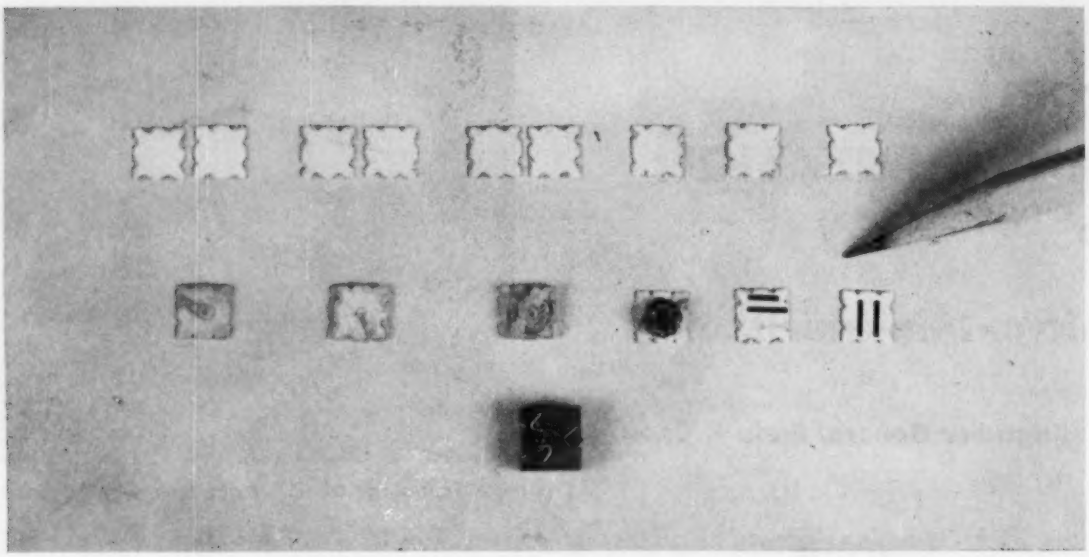


Figure 2. ***Exact size of wafer parts. From left to right, top row: a diode, transistor, capacitor, coil, and resistors. When these wafers are stacked together and assembled as a single module they appear as in the single module at bottom.***

electronic stage, or unit. All the elements of a module are very small, some hardly visible, and all are constructed in a common wafer shape. The assembly is, in itself, a new and complete part, a new kind of electronic part.

Each wafer is about 3/10th of an inch square, and only a few thousandths of an inch thick. A wafer may be ferrite, barium titanate, or even metal, if these are the materials that constitute a part.

The wafers are stacked in different combinations to produce complete modules having any of a variety of electronic characteristics. One module may be a complete four- or five-stage amplifier. Another module may detect a radio-frequency signal. Another may be used to mix several signals together.

An arrangement of several different modules then can replace the complicated wiring and circuitry of almost any electronic device. As a result, equipment can be reduced to one-tenth or less its present size, bulk and weight.

This means that a portable radio set now weighing ten pounds can, through the use of micro-modules, be reduced to a pound or less, with a corresponding reduction in size and bulk. Larger types of equipment such as Army missile and guidance control equipment, which now occupy a large building, can be reduced by at least 90 per cent.

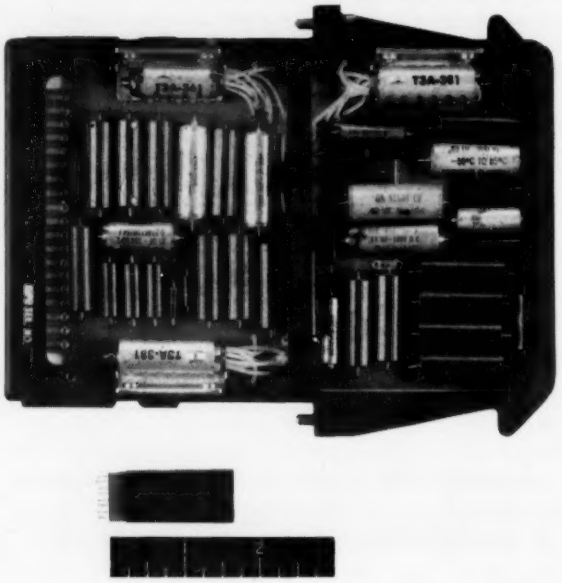
Another important advantage of micro-modules is in supply and maintenance. In the future, small modules will be stocked for resupply rather than the hundreds of thousands of individual parts and components presently required to maintain and repair electronic circuits of military equipment. New modules can be substituted for defective ones in the field as simply as replacing a light bulb.

Basic applications

To appreciate the tiny size of micro-miniature construction, compare the conventional miniature parts of a one-stage audio amplifier, shown at the left in *Figure 1*, three resistors, a capacitor, and a transistor, typical of the kind used by the Army Signal Corps during the past decade, with the micro-module equivalent of the same one-stage amplifier, shown at the right, contâining (though unseen) three resistors, a capacitor, and a transistor. The actual size of these two circuit equivalents shows the 10-to-1 miniaturization that is possible with micro-modular construction.

In its final packaged form, a four-stage transistor amplifier—a more complex but still tiny micro-module—shown at top of page 47, includes a total of 18 parts and 4 transistors, all within one protective envelope. Individual parts within such a micro-module are designed with physical shapes to allow maximum use of available space within the assembly.

Figure 3. ***Upper cut is of a key electronic component of the Nike control system. Lower cut is an equivalent component consisting of several micro-modules.***



A further advancement in the development of micro-modules is standardization of the shape of the tiny wafer parts. This standardization is important to permit different numbers and combinations of types of wafers to be stacked together easily—thus providing a great variety of different kinds of micro-wafers for different types of electronic circuits.

Exact size of these wafers is shown in *Figure* 2. From left to right (at top of picture): a diode, transistor, capacitor, coil, and resistors—physically constructed with ceramic bases only 3/10th by 3/10th of an inch in area, and 1/100th of an inch in thickness. When these wafers are stacked together and assembled as a single module (lower part of *Figure 2*), the resulting micro-module represents the tuning, detecting, and amplifying stages of a radio receiving set—extremely small and light for its complicated electronic function.

Advanced applications

The great saving in space and weight is better appreciated when micro-modules are utilized in more complex types of military equipment.

A key electronic component of the Nike control system is shown in *Figure* 3, and with it an equivalent component consisting of an assembly of several micro-modules. In this one instance, more than 50 depot stock items have been replaced by a *single* item: the micro-module assembly designed for this particular electronic operation.

This simplification of supply and maintenance is an important advantage of micro-modules. Maintenance becomes simply a matter of replacing a defective micro-module assembly—instead of requiring skilled technical labor to find one bad electronic part out of several hundred or thousand.

Figure 4. ***The large box is a mock-up of radio and electronic navigational gear required for surveillance aircraft. Smaller box does the same job, but is constructed of micro-modules developed by Signal Corps.***

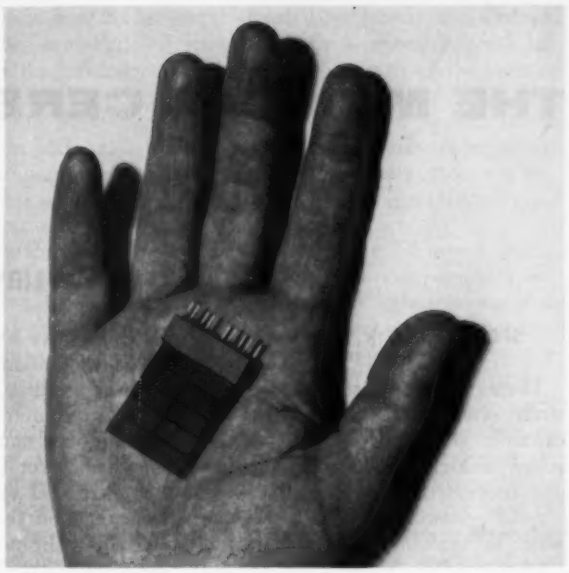


Figure 5. ***A ten-element assembly reduced incredibly in size and weight for use in an earth satellite.***

This simplification of maintenance would allow combat troops to do much of their own repair work, keeping equipment in serviceable condition for a longer period of time, and minimizing the need for highly trained electronics technicians to do complicated trouble shooting and repair work.

The saving in space and weight through micro-modular construction not only takes the weight off the backs of the infantrymen; the saving can complement other equipment.

For example, the Army Signal Corps is currently developing drone aircraft for use in combat surveillance. In these small, pilotless aircraft, all the vital electronic equipment must be very small and very light. The solution, again, is micro-modular construction.

Shown in *Figure* 4 is a mock-up of the radio and electronic navigational gear required for surveillance aircraft. The larger component is the size and bulk required in present construction; the smaller component does the same work, but is constructed of micro-modules developed by the Army Signal Corps.

Even the most complex circuitry, such as that required in a satellite, can be reduced incredibly in size and weight, as shown in the ten-element assembly in *Figure* 5, truly a revolutionary development in electronics component construction.

So great and so many are the potential applications of micro-miniaturization that new development will ultimately influence equipment used throughout the Army, cutting a wide swath through the cumbersome, heavy, bulky equipments of today, and replacing them with extremely light and small components, easier to handle, easier to supply, and easier to maintain and repair.

For these reasons, micro-miniaturization is one of the most important technical and structural advances made in military electronics in recent years—and one that will have an indelible effect on future operations of both the combat soldiers in forward areas and Army missilemen concerned with outer space.

THE MONTH'S CEREBRATIONS

AD LIBS OF WAR

SFC FORREST K. KLEINMAN

Human responses evoked under stress often excel or anticipate the carefully articulated products of conscious thought. Successful novelists and dramatists—even football coaches—make practical use of this phenomenon in evolving their scenarios of human conflict. Many a stirring line in a Broadway hit and many a touchdown play was born on the spur of the moment as the result of an *ad lib* not in the original script. [Ad lib: *Colloquial*. Make up and insert as one speaks, performs, or acts; extemporize freely. ED.]

But what about the most impassioned drama of all—the very prototype of organized human conflict? Are ad libs of war fully appreciated and utilized in writing the scenarios (meaning tactical doctrine) for waging it?

Much too often for optimism, the record of military evolution answers, "No." Some of the most successful tactical innovations born on the battlefield anticipated military doctrine by centuries. Their applicability to the future was unrecognized or misinterpreted not only by contemporary observers but by generation after generation of military planners.

Lacking infantry that could cope with the veteran Roman legions in a conventional stand-up battle, Surenas innovated a fluid cavalry defense when Crassus invaded the Parthian Empire in 53 B. C. To provide his army of horsed archers with sustained firepower, he improvised mobile ammunition dumps using a thousand camels. The combination of greater mobility and superior long-range firepower, continuously applied, resulted in Roman annihilation at Carrhae. Centuries passed, however, before Roman tactical doctrine reflected the lesson.

At Fontenoy, tactical doctrine massed fourteen thousand British and Hannoverian troops for an assault on the French position into a rectangle measuring five hundred by seven hundred yards. Battered by point-blank artillery fire, the attackers saved themselves from annihilation by deploying without plans or orders into small fighting teams. Yet tactical doctrine continued for 171 years to dictate massed formations on the world's battlefields. But the realization that the ad lib at Fontenoy—tactical dispersion—was the logical response to artillery and machine gun fire did not come until after the absurd slaughter of 1914-16.

Outgunned and outnumbered by opposing Union forces, Jeb Stuart improvised ways of increasing the speed of his artillery so that it could maneuver with his cavalry as a mobile combined-arms team. Thus the panzer division was born. But the applicability of Stuart's innovation to future doctrine was not recognized until the thirties of our century.

Varied in time, place, and potential applicability to the future though they were, these examples of previews in military history have common, significant characteristics. All were born of necessity, the mother of invention. They were the product of hasty improvisation—even of the unconscious mind in the case of Fontenoy. All were recorded and carefully studied, but recognition of their true import was woefully retarded.

This department is designed to accommodate the short, pithy and good humored expression of ideas—radical and reactionary, new and old. We pay for all contributions published but you deserve to be put on notice that the rate of payment depends upon the originality of the subject and the quality of writing rather than length. This department is hungry for contributions, so shoot that good idea in . . . today.

In evolving tactical doctrine for future battle today, we like to think that our minds move at a faster pace. But *are* we more perceptive?

True, we have already adopted the increased span of control in our Pentomic organization that improvised tactical groups on the battlefields of Europe and Korea demonstrated to be more efficient. The battle-born concept of tactically self-sufficient task forces is now doctrine, too, in our Strategic Army Corps. The fact remains, however, that the applicability to atomic battle of many more ad-libbed lessons of World War II, Korea, Vietnam and Algeria may be as yet unrecognized.

"Is it possible that our concepts for tactical deployment are as retarded in relation to tactical atomic firepower as were those of 1745 and 1914 to the cannon and machine gun?" was the question offered as food for thought recently by General W. G. Wyman during a lecture at the Army War College. Warning students and faculty not to be misled by what he called "the deceptively smooth walls of familiarity," he urged them to search with imaginative curiosity for undiscovered truths in the records of recent combat.

To my mind, the fluid phases of the Korean conflict are especially deserving of the thoughtful re-examination proposed by General Wyman. Not only were improvisations plentiful during such periods, but some of the most successful ad libs on both sides responded to conditions of battle not unlike those now envisioned as characterizing the atomic battlefield.

Consider, for example, the operations in southwest Korea during late July and early August 1950. Even some of the terms now used to describe atomic battle apply to that situation. There were no lines of entrenchments, no masses of men waiting in reserve, no roads jammed with trucks. In fact, there was *no* front, only a battle area!

Within this drastically depopulated

area, battalion- and company-size combat teams of our 29th and 19th Infantry Regiments and an ROK provisional regiment were deployed for mobile defense at intervals measured in miles instead of in yards. Since other units of Eighth Army were echeloned far to the rear in the process of hasty deployment, the element of depth so esteemed by atomic-battle planners was not entirely lacking in this situation. It does not controvert the significance of the consequences if these temporary troop dispositions were dictated by loss of the initiative and insufficient troops for a linear defense, rather than by the threat of an atomic strike.

From the enemy's viewpoint, his complete lack of airpower and the continuous threat of United Nations air attack imposed a need for passive measures of air defense and a need for adapting offensive tactics to it that were no less compelling than if UN ground forces in the area had been supported by tactical atomic weapons. A battalion destroyed by high explosive and napalm over a period of several hours would have been just as useless for his deep thrust toward Pusan as one destroyed by radiation and blast in a matter of minutes.

In this fluid situation, posing conditions comparable to those anticipated in atomic battle, the enemy employed infiltration on a scale never before encountered by American troops. Entire regiments of the North Korean Communist army approached and sifted through the UN defense position with relative impunity. Dispersed at intervals and distances of a mile or more, they advanced across country in three-man fire teams. Often, disguised as refugees, they carried submachine guns—even dismantled crew-served weapons—under loose-fitting civilian garments and in their bundles.

So deployed, they did not offer a remunerative target for a mortar or 105 shell—let alone an atomic burst. Rifles and machine guns were the only weapons suitable for dealing with them. But the gaps between our combat teams were much too great to be covered by flat-trajectory fire. Patrols dispatched to intercept the infiltrators were eluded or pinned down by enemy small-arms fire while the infiltration continued undeterred on both flanks.

At night the infiltrating units pooled at predesignated assembly areas to ambush convoys, attack rear installations, and to receive orders for the next day's operations. Sometimes they donned uniform (carried in oiled-silk rolls under civilian garb), and assaulted the rear of UN combat teams they had bypassed during the day. To cope with these night attacks, UN units were compelled to draw into tight defense perimeters—a tactic that in the future will offer a highly remunerative target for the *enemy's* atomic weapons.

The enemy advance by infiltration was ominously successful. Not until UN troops fell back to the Pusan perimeter, where they could form a linear defense, was the enemy's rapid movement along the Hadong-Chinju-Masan axis finally halted. Only then were we able to bring our superior firepower to bear effectively. Only then, moreover, was the enemy compelled to concentrate into targets even remotely inviting a tactical atomic strike!

We must not permit our familiarity with this phase of the Korean fighting to deceive us as to its future import. While we recognize that inter-unit dispersion to counter the atomic threat invites infiltration, it is doubtful that our present doctrine adequately recognizes the mammoth scale upon which infiltration will be employed in the future. (In my opinion, it is not beyond the realm of possibility that, in ground offensive tactics, infiltration may prove to be the only practicable accommodation to the tremendous killing power of atomic weapons!)

However useful they may be, infrared, radar, and other sensory devices will not solve the problem of defense against infiltration. It will take infantrymen to flush enemy infiltrators out of concealment and destroy them with aimed flat-trajectory fire. Considering the vastly increased intervals between units, the depth of the atomic-battle area, and the enemy's capability for vertical mobility, it appears likely that we will need many more infantrymen for this purpose than are anticipated by current organizational concepts.

Though our heavily armed battle groups might have comparatively little to fear from the light weapons that infiltrators can carry, we must not forget that the enemy may also have a long-range atomic capability. The primary mission of his infiltrating units may be *atomic target acquisition!* Inter-unit dispersion alone will not reduce the atomic threat to acceptable proportions. We must be prepared to deny the enemy the targets he seeks.

As a result of their studies of the Korean conflict, the Communist Chinese have added a fourth rifle company to their infantry battalion. Instead of reducing the *size* of tactical atomic targets by reducing the size of tactical troop formations, the Chinese plan may reduce the *number* of such targets to nil by combining *intra*-unit dispersion with aggressive infiltration, as they did in Korea and Vietnam.

Just as the Communists in Vietnam refused to employ tactics that would give the French the opportunity to use their heavier firepower and mechanical mobility decisively, so our enemy in atomic battle may shun tactics that will give us opportunities to use our Sunday punch. To ignore the implications to future doctrine of what has already happened during the atomic age at places like Taejon and Dienbienphu, could prove as disastrous for us as it ultimately was for the Romans when they ignored an ad lib of battle at Carrhae.

Sergeant First Class Forrest K. Kleinman *served in the 3d Infantry Division during World War II and was a major in Korea. He is now in the Information Office of USCONARC.*

BRING BACK THE BREVET

LIEUTENANT COLONEL H. P. RAND

Prospects for promotion have definite effect on morale—for better or for worse. The current trend toward a smaller army, together with tight budgets and the consequent progressively reduced opportunities for promotion, should affect officer morale adversely. What I propose here concerns promotion only, and offers one of many possible solutions.

Between the World Wars promotion was slow to a degree we can hardly believe. "I was a lieutenant for seventeen years," was the lament of many officers who brought us up during and after World War II. Those of us who

came in during the late thirties and forties were reared on a far richer diet; promotions came quickly. Some officers promoted only twice during 1942-45 considered themselves failures. The rank held at the end of that war became for almost all the basis for subsequent promotion to this day. It has either helped or hindered everyone—depending upon how fortunate you were—for thirteen years.

Accelerated temporary promotions for a small but truly outstanding group have been in effect for several years. These have been few and have not offered opportunities to others who by force of circumstances were left way behind their contemporaries when World War II ended.

As the Army continues to shrink, an end to all temporary promotions may become necessary, particularly to the higher grades. This poses a big morale problem in that a familiar career incentive—temporary promotion—would disappear. Is there no substitute for this lost incentive for officers with some ten to twenty years of service behind them?

Before answering it might be worthwhile to examine the need for some scheme as a possible substitute for temporary promotion during the next five to ten years. Since World War II left the relative rank among officers in great disparity (it was common, for example, for graduates of the same class to end the war with ranks differing by one, two and even three grades) and since this disparity has been perpetuated ever since, the job opportunities for officers with the same basic seniority have been and are greatly different. Today, the ranks of those who entered the service between 1940 and 1942 vary from major to colonel. A major may, for example, serve as a division's assistant G3, but only a colonel (who could be his classmate) may be its chief of staff. There is little hope for the major to catch up, with temporary promotion gone. However, if his rank were raised without incidental cost, if he were given the same job opportunities as his contemporary, and if his outstanding performance of duty were rewarded, his incentive should be greatly enhanced.

There are jobs which cannot be filled by the rank called for in tables of organization or tables of distribution because of grade shortages imposed by Congressional action. Some are not filled because the best-qualified officers have not attained the necessary rank.

I propose the return of the brevet, which Webster defines as "a commission giving an officer higher nominal rank than that for which he receives pay." The brevet was used in Europe as early as the seventeenth century, principally to bring civilians into military service with ranks distinct from those of the professionals. We began to use this device during the Revolutionary War to commission civilians, most of them Frenchmen. Later, during the War of 1812, the brevet was legislated into existence as a reward for "gallant actions or meritorious service," or for serving for more than ten years in one grade. Among the legal problems raised by the brevet system were: the extent of the rights and privileges associated with brevet rank as compared to permanent rank; whether the appointment to a federal *office* was associated with a brevet, thus making it subject to ratification by the Senate under the provisions of the Constitution; the question of compensation for the higher brevet (this, judging by the definition quoted, seems to have been firmly settled).

Today the Air Force has a system, for its Strategic Air Command only, whereby promotion to one grade above temporary rank allows "spots" from first

GOER DECON TEAM

LT. COL. GREGG L. McKEE and CAPT. GEORGE F. CARROLL

THIS drawing shows an interesting use for the GOER vehicles described in the April 1958 issue of ARMY. The team of three GOER decon vehicles, two tankers (1) and (2) and a cargo GOER (3) are in the process of decontaminating tanks and personnel which have been subjected to the fallout from an atomic surface burst.

The tankers each contain four thousand gallons of clean water which they have carried across the fallout area to the temporary radiological decon site.

The near GOER has quickly set up its rapid-wash apparatus which is similar in design to that used by the civilian quick-car-wash concerns. In this rough or tactical method of decontamination the tanks drive through the wash rack (4) in rapid succession, each vehicle going through a 250-gallon bath in about two minutes. After clearing the wash rack each tank is checked with a radiological monitoring instrument (5) to determine whether the wash has reduced the radiological contamination on its outside surface to the predesignated command-decision, maximum-

lieutenant to lieutenant colonel. The spots are awarded or can be rescinded every three months by board action based on performance evaluation. For these promotions, pay is for the higher spot rank. Spot rank is considered even in determining seniority for a subsequent permanent or temporary promotion to that same rank.

I propose that Congress authorize brevet rank of one grade higher than temporary or permanent grade for outstanding performance of duty. The prescribed standards must be extremely high and the number of promotions must be kept low. Performance and assessed capability should be comparable to the "truly outstanding" criterion used in selecting officers for promotion from outside an established zone—the so-called five per cent promotions. An advantage in the system proposed is that recommendation from the field could be acted upon after careful evaluation of personal records in the Pentagon. The system thus would combine two features of a previous system and the current scheme for out-of-zone promotions.

An officer so promoted would wear the insignia of his brevet rank and have its rights and privileges. He would be paid only for his highest permanent rank, and revert to that grade upon relief from the job that carries brevet rank. Of course, appropriate entry would be noted in his 201 file so that his field promotion to and service in the higher rank could be considered in any future personnel action. His service in the brevet rank would be evaluated and his efficiency rated. While holding brevet rank the rated may be temporarily the rater. While this may be painful to some, generally there should be no serious objection, considering the high caliber of the breveted rater.

Of course, you can't please everybody. Certainly they would not be happy who might be done out of a job by a junior breveted to compete with them, or who regard only financial gain as a worthwhile reward. Neither would they be pleased who see contemporaries breveted, while they go unrecognized. But those with high military ideals, who always seek greater challenges, the potential wartime leaders, who are otherwise blocked from more responsible jobs, would welcome an opportunity for recognition and for practicing their talents.

The "white charger" proposals recently submitted to Congress make the institution of out-of-zone promotions more permanent than ever. The brevet system might be helpful as a proving ground for officers who promise to become possible candidates for such promotion.

To prove truly effective, a brevet system must be accompanied by other personnel actions, among them some of the proposals in the white charger plan, specifically the authority for forced elimination of officers with more than twenty years of service. The brevet proposal is but one element in the entire promotion scheme.

With its offer of opportunity, brevet rank should appeal to the topnotch officer. It should also appeal to Congress since it requires no outlay of funds. Properly coordinated with the many other career attractions now under study and being implemented, brevet rank could contribute significantly toward improving the quality of our officers.

Lieutenant Colonel Heinz P. Rand, Artillery, *served with the 13th Armored Division during World War II and was integrated into the Regular Army in 1946. He has had several tours at Fort Sill and one in ODCSOPS. Colonel Rand wrote several articles for ARMY and its artillery predecessors.*

dose-rate limit. The wash rack is so positioned that natural drainage contours cause the contaminated water to flow off into a natural sump where it is allowed to decay with time. When time and facilities permit, this sump may be covered over after use so as to bury the remaining contamination.

The second GOER tanker (2) is set up as part of a personnel decon station. This tanker, identical with the other insofar as ancillary equipment is concerned, provides warm showers for men who might have been contaminated by fallout. After his shower each soldier is checked for contamination and, if the decon shower has reduced the radiation dose-rate to maximum acceptable limits, he continues along the duckboard walk to the cargo GOER (3) where he is issued fresh clothing and any needed personal equipment.

The high-pressure pump on each tanker is electrically driven, power being supplied by the generator in the GOER prime mover. This electrical power may be used in several other convenient ways. Combined with the waste heat from the engine's exhaust it can warm the shower water while the GOER tanker is in movement. It can provide hot-air dryers for men who have bathed and it also can be used to turn agitator blades within the tanks to permit mixing chemical decontamination slurries.

The decon team of three GOERS carries sufficient water, detergent and other decontaminating agents and clean clothing to completely process a tank company. Decontamination of the entire company, following a preparatory period of about ten minutes, requires approximately one hour, at the conclusion of which time the GOER tankers must replenish their supply of water.

An additional feature of the GOER vehicle is a spray bar across the nose of the cab of the GOER prime mover (1). This bar sprays chemicals ahead and to the sides of the vehicle so as to provide a decontaminated path that the other vehicles of the command may follow. It can also be used for washing down contaminated roads.

Each of the two GOER tankers of the team carries four thousand gallons of water. GOER and its equipment replaces the truck mounted, 400-gallon, power-driven, M3A2 decontaminating apparatus. Each GOER carries almost as much water as an entire chemical decontaminating company can now carry in its twelve trucks.

The currently used M3A2 can cover 1,300 square yards of smooth surface, such as a paved road, with decontaminant sufficient to neutralize any persistent chemical agent within that area. Each decon GOER, utilizing the spray bar shown in (1), can neutralize a paved surface one mile long and 22.5 feet wide.

The decon GOER thus greatly increases our ability to decontaminate tanks, their crews, and other personnel, with a great saving in both men and equipment. It enables us to decontaminate with the speed which is so vital to the health of crews and it frees us from the necessity of locating water.

GOER's high mobility also permits the decon team to accompany the tanks off roads, so that they are conveniently at hand when and where needed.

Irons in the Fire

Armored Aluminum

A high-strength, weldable aluminum alloy developed by Kaiser Aluminum will be used in the construction of three pre-production models of the Army's new lightweight armored vehicles by Food and Machinery Corp., at its Ordnance Division, San Jose, Calif. Aluminum will make the vehicles light enough for air transport, and strong enough to withstand severe field operational requirements. In addition to the hull, the vehicle's power plant and other components will be made of aluminum.

Tank Production Resumed

An additional nine hundred medium Patton tanks are to be produced for the Army by Chrysler Corp. at the Lenape Ordnance Plant at Newark, Del. Production will be carried on between 1 January 1959 and 31 March 1960.

Quiet, Please!

An experimental electronic earphone, considered a major breakthrough in noise reduction, and designed to create artificial quiet by shutting out noise that interferes with combat communications, has been developed by Army Signal R&D Laboratory and RCA. The artificial quiet is created by adding noise with a miniature microphone to create a second noise, just as loud but opposite in phase. The opposing sound waves use up almost all of their energy, reducing a loud roar to a whisper. Noises are reduced to as little as one-tenth of original volume.

Welcome Aboard

Six Army aviators recently became "shipboard-qualified" by landing their H-19 helicopters on the flight deck of the Navy icebreaker *Glacier*, anchored at Thule Air Base, Greenland. The thirty-six landings and pilot changeovers were accomplished without incident, bringing high praise from Navy aviators who witnessed the display of precision flying.

Helmet radio developed by Army Signal Corps uses sun's rays for electrical power to operate both transmitter and receiver.

Anti-Germ Mask

A new type of oro-nasal air-filtering mask has been developed by the Army Chemical Corps. The mask has proved to be ten to fifteen times more effective in filtering out airborne bacteria than the conventional surgical mask. The mask was designed primarily for testing the filtering efficiency of experimental biological and chemical warfare protective masks.

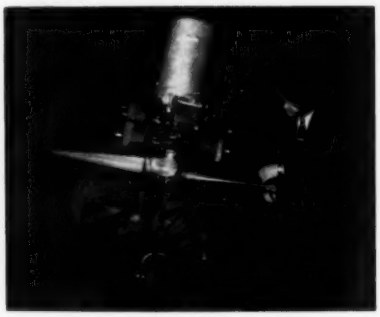
HOT SPARKS

Optical measurements of the glowing nose cone and rocket body of the Jupiter IRBM were made by Avco Research Laboratory at Everett, Mass., during the missile's re-entry over the Atlantic. Avco obtained the data in participation with an interservice team organized by the Army to study the Jupiter re-entry. The three incoming bodies—nose cone, rocket body and instrument package—were observed visually from ships stationed in the target area.

The Army and the Martin Co., prime contractor for the Pershing Missile System, have selected four major subcontractors for the Army's new solid propellant missile. They are: Bendix Eclipse-Pioneer Division of Teterboro, N. J.; Bulova Watch Co. of Long Island, N. Y.; Thiokol Chemical Corp. of Huntsville, Ala.; and Thompson Products Accessories Division of Cleveland.

A new "detarnisher" for uniform gold braid has been put on the market by Louisville Cap Corporation. This chemical tarnish remover, called Magic-Gold, comes in two plastic squeeze bottles packed in a clear plastic box, and also can be used on gold and silver insignia. According to the manufacturer, an application takes only a few minutes to completely restore original luster.

Handy Airplane



The odd-looking bug-like package shown above butterflies into a genuine flying airplane (see below) in minutes. It was developed for the Navy by Goodyear Aircraft Corp. Known as the Inflatoplane, it is handily packaged complete with engine, propeller and wheel and is inflated (by air hose or household vacuum cleaner), checked out, and sent on its way powered by a 45-hp Nelson engine.

The Army Ordnance Corps has established a study group to examine tactical requirements and technical solutions to equipment problems involved in limited war. The study group of top scientists from universities and industrial organizations is conducted under direction of the Future Weapons Systems Agency of the Ballistic Research Laboratories, Aberdeen PG.

More than fifty officers and civilian scientists of the Army Research Office and Army Technical Services conferred in July with representatives of General Electric Co. On the agenda were nuclear energy, aerosol stability, infra-red light amplification, power sources, high temperature materials, human engineering, silicone rubber, generation of radio frequency power, and upper atmosphere research.

The Army has recovered intact the nose cone from its Jupiter IRBM launched successfully on 17 July. This latest nose cone recovery affirmed that Army missilemen have solved the problem of warhead protection against re-entry into the Earth's atmosphere.

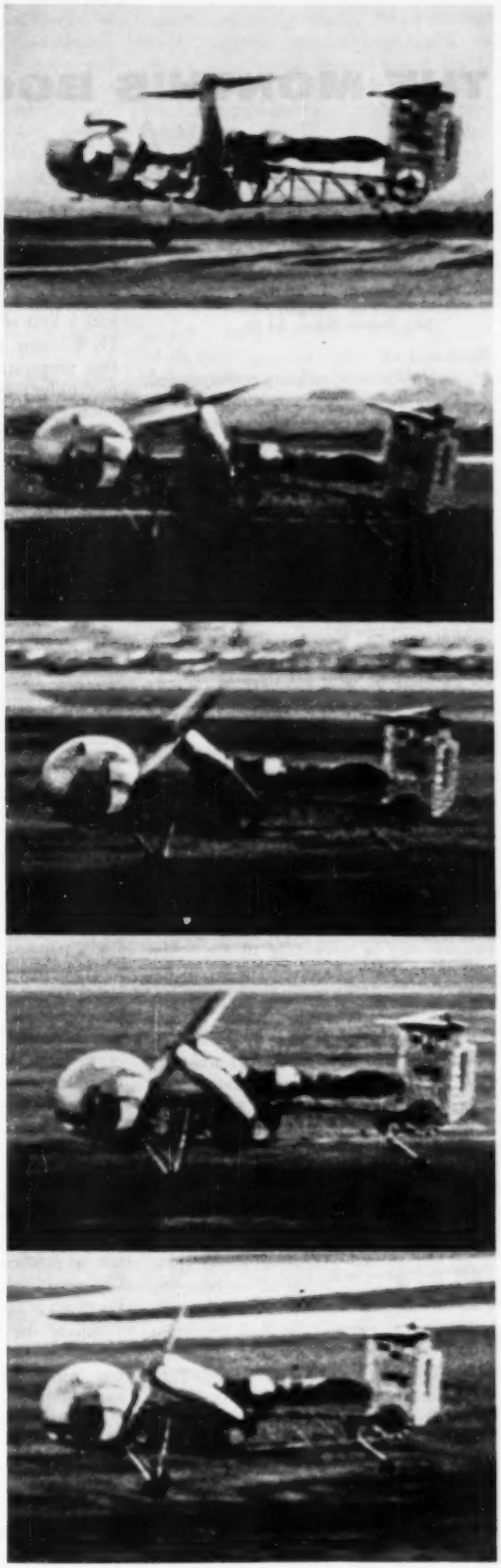
Tilt-Wing Aircraft Flies

The first transition flight of a tilt-wing VTOL research aircraft has been successfully completed by Vertol's Model 76 *(right)*. In the tilt-wing, the wing and rotor-propellers are tilted vertically for take-off and then move to a horizontal position for flight like a conventional aircraft.

The Army is urging qualified enlisted men to apply for training and assignment in its Nuclear Power Program. The training includes a six-month basic academic course in nuclear power plant technology at Fort Belvoir, followed by six months of operational training on the Army Package Power Reactor.

A total of 110 contracts for Army Reserve construction, amounting to some $22 million, were awarded by the Army during fiscal year 1958, the greatest number in the Reserve program in any one year. The awards provided for 80 Army Reserve centers, including 79 new constructions and one purchase of an existing building. The remaining contracts included construction of assembly halls, expansion of existing facilities and construction of maintenance shops. This makes 305 Reserve centers constructed or under construction since the program began in 1950.

A gas-driven gun capable of shooting a projectile at 13,500 mph is planned by the Convair Division of General Dynamics Corp. The unit will be used for advanced research on missiles and their re-entry into the atmosphere from space.



Model 76 takes off like a whirly-bird.

Airborne, its props . . .

begin to tilt and bite the . . .

air like a fixed-wing plane . . .

in forward flight

THE MONTH'S BOOKS

Soviet Military Advances

SOVIET STRATEGY IN THE NUCLEAR AGE
By Raymond L. Garthoff
Frederick A. Praeger, 1958
283 Pages; Index; $4.50

Reviewed by
MARK S. WATSON, *military correspondent of the Baltimore* Sun, *author of the Army's official* The Chief of Staff: Prewar Plans and Preparations, *and lecturer at the National War College.*

The look into military weapons and tactics and strategy which Raymond L. Garthoff offers in his new *Soviet Strategy in the Nuclear Age* is as persuasive as it is bold. At the same time this is one of the most informative books on an ominous subject that the reader will encounter. Of first importance, certainly, are the lessons which American military planners must draw from a remarkably thorough examination of what our most threatening enemy is doing—and thinking.

This last matter calls for special scrutiny, as sharply pointed out by the author in his preface: "Suddenly prompted by such spectacular technological achievements as sputnik, we tend to attribute all nature of superior concentration of skills to the Soviets. Yet the idea of Soviet advance or advantage in the realm of military *thought* rarely, if ever, has been raised."

Well, it is thoroughly raised by Dr. Garthoff, who in the past five years has emerged as one of the Nation's most advanced thinkers on military matters, with close attention given to his lectures on Soviet affairs at the National War College, the Army War College, the Air Command and Staff College, and Harvard. Research for his present examination of Soviet activities included studies in Russia itself; the full documentation of his text and the extended bibliographic notes are of great value in encouraging still further scrutiny of source material.

If one is to identify the most important single aspect of the advanced thinking which Garthoff rightly attributes to Russia's military planners, he probably would decide it to be a recognition of the need for all-around planning and all-around combat readiness. And, if so, the observer would have to recognize that, of all America's weaknesses, the very greatest is our failure to arrive at that same recognition, as a first step toward pushing America's own all-around readiness. On page after page of this truly stirring book the reader will think he hears an echo of what Generals Ridgway, Taylor, Gavin, and a host of other bold thinkers of the U. S. Army have been saying for years: that preparation for massive all-out thermonuclear warfare is nowhere near enough, and that only a balanced readiness for any kind of warfare at any time can provide that flexibility of operations which is the key to quick success in battle.

The Soviet's own advanced thinking on current military matters, it is a little surprising to learn, seems to have begun in 1953, for up to then the Stalinist idolatry anchored Russian military planners firmly to the concepts of the 1945 victory. Garthoff's search of military publications from 1947 to 1953 reveals not a single mention of atomic weapons, and the awe in which the Stalinist views held a docile war ministry is indicated by the record that only in 1953 did Admiral Kutznetsov break the spell by his dictum in public that "experience of the Great Fatherland War alone is no longer sufficient." But from 1953 on came a torrent of new ideas, not alone in the technology we know of, but in the abstract thinking which Garthoff has knowingly pointed out.

It is interesting to see how Clausewitz's famous axiom has been re-examined and re-applied to meet communism's basic requirements. Note these extracts from Soviet staff publications: "The objective of military strategy is the creation by military means of those conditions under which politics is in a position to achieve the aims it sets for itself." And "Strategic war plans are worked out on the basis of objectives established by politics." But most significant, Marshal Boris Shaposhnikov's earlier "If war is a continuation of politics, only by other means, [the Clausewitz axiom] so also peace is a continuation of conflict only by other means."

Surely the Soviet Union's Cold War tactics are an abiding example of that last-stated concept, with "other means" including threats of battle by all-out or by conventional forces, and the actuality of infiltration, economic pressure, sabotage, "spontaneous" rebellions, diplomatic maneuvering, and all other instruments of Russian guile and ingenuity and determination which seem to continue to baffle the West.

The fullness of Soviet flexibility of planning, as of preparing, in the realms of actual combat readiness, is best indicated by the thesis that, while massive equipment for all-out devastation and for defense against it must certainly be at hand, Soviet planners have no belief whatever that such devastation by either side would end the war. Quite the contrary. The USSR is convinced that not only during a thermonuclear war, but after it, there would be ample opportunity to employ tactical ground forces—and hence tactical ground forces and their auxiliaries must be kept at a high state of completeness and readiness for action.

Can a nation, then, rally after thermonuclear destruction? Or, even more remarkable, during it? Garthoff offers a reminder of what the Soviet Union went through in 1941—not alone the loss of millions of its troops, but the loss of control over forty per cent of its population, the loss of forty per cent of grain production, the loss of sixty per cent of basic metals output, the loss of ninety-five per cent of certain essential manufactures such as ball bearings. But the USSR rallied and fought to victory. Would a thermonuclear war do much more damage? And is the USSR the only rugged nation?

Great stress is laid continuously on the unceasing nature of Soviet planning and operating. There is no pause for refreshments, or for election campaigns. The thorough-going record of how the Soviet forces have been organized, and how they have alternately influenced and been influenced by political considerations is indispensable to an American's knowledge of the what and why of recent puzzling years behind the Iron Curtain.

Garthoff's forecast of what a war in 1970 would be like is illuminating. He assumes that there will be no great war until then; that today's dream weapons will then be real weapons; that if in the meantime the Soviets have gained politically they will be more confident; and, if they have lost ground, their instability will invite an external war. In these circumstances he foresees a radical change in military formations, which then will be organized by functions rather than branches. There will be: (1) a strategic deterrent force, (2) a strategic defensive force, (3) a strategic offensive force, (4) the theater forces.

New materials and fuels and models will have totally transformed the deterrent force. Underseas equipment will include subsurface containers for IRBM launchings—anchored secretly here and there in the seas and hence hard to detect, and fired by remote control. To this prospect the USSR's present concentration on oceanographic charting has a clear relationship.

Meantime, there will be mapping of the whole globe by satellite photography, for ICBM target-fixing. The CBR weapons, plus death rays, will be at hand, and so will interplanetary missiles. The army will be all armored and all airborne; even tanks will fly. The army will have greatly extended its use of tactical air. The air will include supersonic manned bombers and glide rockets, and troops will be transported by air rocket, and by giant submarine. This sounds like flexibility of matériel, and flexibility of planning.

Garthoff's new book provokes more thinking on our part than most of us have done in a long time. And not much of it is soothing.

New Clausewitz Needed

CHOICE FOR SURVIVAL
By Louis J. Halle
Harper & Brothers, 1958
146 Pages; $2.75

FOREIGN POLICY: The Next Phase
By Thomas K. Finletter
Harper & Brothers, for Council on Foreign Relations, 1958
208 Pages; Index; $3.50

Reviewed by
COL. T. N. DUPUY, *USA, Retired, co-author of* Military Heritage of America, *now associated with Harvard's Defense Policy Seminar.*

No one needs to be reminded that the advent of nuclear weapons has introduced unprecedented and still largely unknown factors into the already complicated diplomatic and military problems of war and cold war. As he has attempted to grapple with these ill-defined problems, many a military planner, government official, and civilian scholar has wished for the appearance of a nuclear-age Clausewitz.

A partial response to the requirement has been made by some thoughtful and able civilians—such as Henry A. Kissinger and Robert E. Osgood—but such men have wisely left the specifics of modern warfare to military professionals. A few military men—notably British airmen Sir John Slessor and E. J. Kingston-McCloughry—have made some valiant efforts to meet this challenge, but none has yet produced a philosophical theory on modern warfare to match, or even supplant, *On War*. And now the efforts of two more capable civilian writers serve to reemphasize the need for a military study which would provide for the middle of the twentieth century the same sort of philosophical analysis of the relationship between policy, military theory, and operational and technical realities as Clausewitz did for the nineteenth.

These new books by already distinguished authors both are designed to achieve the same end: to outline policies and concepts whereby mankind—and particularly its Western component—can minimize or eliminate the threat posed by weapons capable of extinguishing civilization as we know it. Here the similarity ends, for Finletter and Halle approach their common objectives in totally different fashions.

Unlike Finletter, Halle does not concern himself with the immediate specific problems of American foreign policy, but rather endeavors to consider philosophically and theoretically the problems of war and peace, as affected by the new weapons. A short, well-written book, it should be required reading for every military professional. It is at least a step toward Clausewitzian analysis, and highly readable to boot.

Halle realistically recognizes the prevalence and inevitability of human conflict. Without attempting to overdraw comparisons, he clearly shows the value of history in providing helpful perspectives for current problems. Since mankind is probably not yet ready to abandon the use of force in conflict, he stresses the need for finding ways to prevent unlimited catastrophic nuclear warfare, and he provides some cause for hope. The problems of deterrence and limited war are expertly presented, without pretending to offer perfect, Utopian solutions. Finally, and without indulging in wishful thinking, he finds reason to believe that time is on our side in the present international conflict, if we don't misuse it.

No book of this type can escape criticism, and any thoughtful reader is bound to find assertions, assumptions and conclusions with which he cannot agree. (But it will be difficult to knock holes in the closely reasoned, logical arguments.) In a few places Mr. Halle opens himself to the charge that he does not have a professional understanding of some of the military tactics and techniques which he discusses briefly. He is misled, for instance, as to the effect which limited nuclear warfare will have on the manpower requirements of the armed forces, and on the ways in which this manpower can best be employed.

Mr. Finletter's book lacks the smooth literary quality of Halle's—both tend to be a bit wordy—but has the offsetting advantage of dealing more with current realities than with philosophical theory. It is, therefore, a more timely book, but will quickly become dated, while Halle's will not.

Mr. Finletter recognizes, as the present Administration apparently does not, that we are currently engaged in a conflict in which our national existence is at stake; a conflict which could become a shooting war any moment the ruthless enemy thinks this would be to his advantage. Finletter also presents an excellent answer to the Kennan arguments for European disengagement by the United States.

Army officers should read the book to become familiar with the apparently logical, persuasive, and deceptively simple argument in favor of building up our long-range air-atomic power to a "clearly superior deterrent force," at the expense of all other types of military force. In so doing, however, Mr. Finletter fails to show any recognition of the complexity of military and national strategy, and ignores the fundamental requirement of being able at least to offset or counter all the enemy's capabilities. He fails to cope with the question, "How much is enough?"

Readers will also gain a valuable lesson in the complex nature of the problems of American foreign policy by noting the number of times Mr. Finletter has to contradict himself—frequently without realizing it—in applying his basic theses to the realities of our international relationships around the world. Vehement as to the necessity for preserving what he calls "the Grand Alliance," he blithely advocates policy which would include the Algerian problem in "the whole Near Eastern settlement"; a development which most critics would not only consider as inherently illogical and unrealistic, but which would be certain to force France out of NATO and out of "the Grand Alliance."

In the same paragraph Mr. Finletter forgets what he had earlier written about the insoluble nature of the Arab-Israeli conflict, ignores the facts of Arab politics and problems, and of Soviet involvement in the Middle East, concluding with these remarkable words: "It seems right that, so far as Algeria is concerned, we should ask Nasser to make peace with Israel and join in the economic development of the Near East while we in turn urge France to work out a permanent settlement with the people of Algeria. Once Egypt and the other states of the area end the state of war against Israel, then a settlement of the other problems becomes possible—Algeria, the long-term plan for raising of living standards in all the Near East and on the North African shore, the resettlement of displaced persons, and the rest."

Yet, for all such utopian concepts, the book is sincere, earnest, high-minded, and thought-provoking. *Foreign Policy: The Next Phase* should be read—but critically and analytically—in conjunction with Halle's *Choice for Survival*.

Selected Check List of the Month's Books

This run-down of some of the books received for review during the month preceding our deadline is to give our readers who like to follow current literature a monthly check list of the most important, useful and potentially popular books. Full reviews of some of these books may appear in this or subsequent issues. Any of these titles may be purchased through the Combat Forces Book Service.

BLOCK DIAGRAMS: And Other Graphic Methods Used in Geology and Geography. By Armin Kohl Lobeck. Emerson-Trussell Book Company, 1958. 212 Pages; Illustrated; $6.00. A second edition of a clear exposition of the art of graphic expression, with 311 finely executed figures. Well worth the price.

THE CHALLENGE TO AMERICA: Its Economic and Social Aspects. Doubleday & Company, 1958. 78 Pages; Illustrated; $.75. The economic section of the Rockefeller Report.

CHANNEL DASH. By Terence Robertson. E. P. Dutton & Company, 1958. 208 Pages; Illustrated; Maps; Index; $4.00. The fantastic story of the escape of *Scharnhorst, Gneisenau* and *Prinz Eugen* through the English Channel in broad daylight in 1942. Well told by a naval historian.

CZARS AND PRESIDENTS. By Alexandre Tarsaidze. McDowell, Obolensky, Inc., 1958. 383 Pages; Illustrated; Index; $6.50. The history of the amicable past relations of the U. S. with Tsarist Russia. A wealth of vignette and anecdote, focussing principally on the Civil War and the purchase of Alaska.

DICTIONARY OF MILITARY TERMS: English-German, German-English. By Friedrich Krollman. Philosophical Library, 1958. 769 Pages; $10.00. Covers today's military terminology so far as that could be done in a pocket-sized volume. A good acquisition if you can afford this price for a fat book that measures 4 by 6 inches.

EN ROUTE TO THE REDOUBT. By Col. Ralph E. Pearson. Privately published, 1958. The battle history of the 318th RCT. Volume I was reviewed in ARMY for May 1958. Volume II goes from 8 November 1944 to 5 April 1945; Volume III from 6 April to January 1946; Volume IV carries into 1958, with details on persons and units; Volume V has more of the data of Volume IV, and the index. $2.20 each.

HOW TO MAKE GOOD HOME MOVIES. By the Editors of the Eastman Kodak Company. Random House, 1958. 192 Pages; Illustrated; Index; $1.95. A harvest of ideas for shooting color movies with any kind of camera. A bargain at the price.

ONLY IN AMERICA. By Harry Golden. World Publishing Company, 1958. 317 Pages; $4.00. American life as seen by the founder and editor of *The Carolina Israelite,* the most-quoted newspaper of personal journalism. The author has a feeling for the common man. Foreword by Carl Sandburg.

PENSION AND RETIREMENT RIGHTS. By Col. Stephen F. Tillman, USAR. Privately published, 1958. 60 Pages; $1.00. Brought up to 1 June 1958. Benefits for veterans; social security for military personnel and their families; survivor benefits for retired people; 1958 pay tables. Has been kept up to date through several editions since 1950.

SOLDIER IN WHITE: The Life of General George Miller Sternberg. By John M. Gibson. Duke University Press, 1958. 277 Pages; Index; $6.75. A straightforward biography of a physician who began his military career at Bull Run, and retired as Surgeon General in 1902, becoming, in the meantime, one of America's all-time medical greats.

U. S. GRANT AND THE AMERICAN MILITARY TRADITION. By Bruce Catton. Grosset & Dunlap, 1958. 201 Pages; Index; $.95. A paperbound reissue of the book in which the Pulitzer Prize winning historian of the Civil War brings to life our most colorful and least understood hero. Reviewed in ARMY for June 1954.

Into the Realm of Infinity

WHAT'S GOING ON IN SPACE?
By Commander David C. Holmes, USN
Funk & Wagnalls, 1958
256 Pages; Illustrated; $3.95

BEHIND THE SPUTNIKS
By F. J. Krieger
Public Affairs Press, 1958
380 Pages; Illustrated; Index; $6.00

Reviewed by
LT. COL. ROBERT B. RIGG, Armor, *author of* War—1974, *who has joined the faculty of The Armor School.*

Until the astral *bleeps* from the Soviet moonlet fell with dramatic impact upon Earth, man's total contact with the mysteries outside our atmosphere has been through charred meteoric dust and the blurred images of other planets seen through telescopes. These two books are concerned with the effort leading to the exploration and conquest of this infinite realm of the beyond, and each opens a little wider the vista into outer space.

Commander Holmes documents the recent efforts to probe the new frontier. Descriptive and definitive, his text takes the reader into the space technology and programs without bogging down on technicalities. Orbiting from satellites and space vehicles to Moon shots and ICBMs, his lively book swarms with interesting facts and fascinating features. "A 100-megaton H-Bomb would dig a [Moon] crater about three times as large as that of the famous Arizona meteorite." "It has been forecast that the Russians may try to paint a giant red star . . . on the moon using rockets. Such a stunt is entirely impractical." "A partial exploration of the moon's surface will only result from a great national sacrifice. No other endeavor . . . has offered such a fertile opportunity for international competition."

This missile-qualified author points out that outer space exploration is not all technological challenge. It also bears a formidable dollar price tag: "Merely placing a single space ship on the surface of a neighboring planet will severely tax the resources of any nation and can only be accomplished at a significant reduction in the standard of living of its people."

Authoritative and well written, *What's Going on in Space?* belongs on every military bookshelf because it vividly presents facts vital to those uniformed men of today who balance on the fulcrum of a fascinating and challenging tomorrow.

A tightly packed capsule of information on Soviet space science, *Behind the Sputniks* is a rare and valuable text that ranges from problems of astronautics and biological factors to Russian rocket and missile development, Moon probes, and dog-flight experiments. It reveals that months before Sputnik I went into orbit the Soviet radio-ham magazine *Radio* gave "a fairly comprehensive description not only of a satellite's orbit . . . but also of the satellite's radio transmitters," and how the twenty and forty megacycles were to be used; two months before Sputnik I soared into space this magazine carried articles on how to build a "receiver and direction-finding attachment for tracking the Soviet Sputniks."

Based almost entirely on translations of scientific literature, the text is an encyclopedic index to the Soviet missile-satellite-space program. This is more than a knothole look through the Iron Curtain. The book contains a choice collection of papers by Soviet scientists and clearly reveals their thinking and concepts. For example, one expert describes a radio-controlled tankette-laboratory for surveying Moon's surface and delivering supplies to men on it. Another Red scientist predicts that the clothing of the first men to investigate Moon will be so instrumented as to describe physiological changes. Still another outlines the principles for world-wide retransmission of television by means of three Earth satellites.

Timely, terse, and not too technical, this study, prepared as a part of the research program for the USAF by RAND Corporation, presents valuable

knowledge on Soviet space technology. Besides a table of twenty-five Russian rockets and missiles, it includes a 38-page bibliography of Soviet source material. Summed up, the book orbits skillfully in a relatively unknown field and transmits valuable data that our military men should know. Until you read it—and its American companion piece—the *bleep-bleep* of Sputniki and Explorers will be meaningless. The qualified "space" experts will welcome Dr. Krieger's text. All Americans should read both.

Challenge at Berlin, 1948

THE BERLIN BLOCKADE: A Study in Cold War Politics
By W. Phillips Davison
Princeton University Press, 1958
423 Pages; Illustrated; Index; $7.50

Reviewed by
BRIG. GEN. WILLIAM B. BUNKER, *USA, CG, USA Transportation Supply and Maintenance Command, who was in charge of terminal operations during the Berlin Airlift.*

The Soviet blockade of Berlin in 1948 was a major milestone in the long road of U.S.-Soviet relations since World War II. It was the first time that our wartime ally directly and openly opposed us with force and still is the nearest to outright war between us. Little attempt was made, as in Korea, to interpose a straw man to carry out the Kremlin's orders, and the hand of the Russian was plain for all to see.

We in the Army of occupation, jumping into the breach to keep an ever-increasing flood of supplies flowing into Berlin, had little opportunity to consider the large-scale international aspects of this major peacetime battle. We were busy long hours of the day and night gathering cargos, loading and unloading planes, and trying to keep thousands of war-weary trucks running. Our compatriots in the new-born Air Force were far too busy worrying about their thirty-second intervals in the blinding, freezing fogs to even think of the whys and wherefores of this most spectacular use of air power. It was a particular pleasure for me, therefore, to read in *The Berlin Blockade* the broad perspective of this operation and to re-appreciate the tremendous significance of this major turning point in our anti-Communism campaign.

Our prompt and vigorous resistance to the Soviet effort to make us evacuate Berlin falls in the category of our reaction in Korea as an unequivocal refusal to allow the Kremlin to infringe on our periphery of freedom. While there were many, both in Europe and at home, who felt that we were making too much of a minor Soviet advance and even more who feared our reaction in both cases might provoke the USSR to all-out war, the firmness of our action and the rapidity of our response obviously impressed our enemy. Recalling the vigor of our response, Mr. Davison's excellent and detailed analysis cannot fail to give a glow of pride to those who had a part in implementing this significant effort.

America too frequently forgets that we have less to fear from our enemies if we show a firm determination to do what we think is right than by a vacillating program of accommodation. Mr. Davison's study shows again that we were never in any danger of losing this second battle for Berlin so long as we had the will and firmness to stand on our principles. Even from the worm's eye view of Rhine/Main's hot dusty loading ramp, I remember thinking that surely the Russians were not going to be so stupid as to allow us to feed the Germans of Berlin with our airlift when we got the orders to start lifting their food and coal in August 1948. In spite of its impact on us, we were proud when General Clay told us we would accept this challenge.

I strongly commend the study of this volume to all who are concerned with U.S.-Soviet relations, and that certainly includes all intelligent Americans today. In the usual high standards of the RAND group, Mr. Davison has analyzed all the international aspects of this major political battle from the points of view of all the participants. The conclusion is writ large for all of us to take to heart: *have faith in our convictions and do not back down.* The Kremlin has always respected us the most when we showed our intentions unequivocally.

Two for the Troops

THE ARMY NOTEBOOK: For All Ratings
By Col. Sidney Morgan
Vulcan Press, 1958
87 Pages; Illustrated; $1.50

EXHIBITION DRILLS
By Capt. William M. Glasgow, Jr.
Military Service Publishing Company, 1958
198 Pages; Illustrated; Index; $2.50

Reviewed by
COL. DONOVAN P. YEUELL, JR., *Artillery, an occasional contributor to this magazine, who commands the 9th Division Artillery at Fort Carson, Colo.*

In this fast-moving age, few professional soldiers have the mental capacity to store even a fraction of the facts, figures, and factors that one may need at a moment's notice. These days, a man can absorb only so much of the technical matter, concepts and procedures required for sound tactics. There will never be a foolproof solution to this need for practical knowledge at the soldier's fingertips, but a hopeful beginning has been made in *The Army Notebook.*

This eighth edition, pocket-sized, is loose-leaf, sturdily covered and well printed, with blank pages for notes. It includes some fifty subjects and sections, varying from "Personal Affairs" through tactics to "The Principles of War." This very breadth of coverage may be one of the notebook's main shortcomings. The field should be either narrowed to strictly everyday requirements for the field soldier, or expanded so as to bring the subjects into better balance. The latter would be preferable, for it would permit the owner to tear out subjects of no interest to him rather than leave gaps as this notebook does. Something could be done also about the jumbled order in which the subjects are arranged.

In any event, the notebook is certainly a good try, and its evolution should be continued with vigor. It has weaknesses which become apparent to the reader, but nevertheless this is a worthwhile thing for any commissioned or enlisted soldier to own. Colonel Morgan has come far closer to filling the need for such a notebook than any attempt I have seen.

Exhibition Drills will be welcomed by all who enjoy precision drills, and is good news, indirectly, for those who love a parade. It fills a gap that has widened for two decades in the patriotic tradition of our country. That is, it promotes a revival of one phase of the military show so dear to American hearts, our distaste for "militarism" notwithstanding. When one considers the variety of uniformed civic and fraternal organizations in America society, like the Shriners, the veteran associations, the high-school and college bands, it is obvious that interest in military-type ceremony runs high indeed. *Exhibition Drills* should be a tremendous help to groups of this type. (The one exception is that the book does not deal with bands.)

This small book tells, as well as any reasonable amount of words and pictures can, how to organize and train a team to perform many types of drill. Every company-sized outfit would do well to have a copy; sooner or later it will prove invaluable (but first sergeants may get some spit-and-polish ideas from it!).

In addition to concentrating on how to train in a variety of special drill movements, the book includes a handy condensation of the current IDR and a summary of some of the more famous drill units. It is especially gratifying to find a section, under the title "West Point Cadet Drill," devoted to the revival of the fine old squads-east-and-west of pre-1939 days.

No other book of the kind is known by this reviewer. According to the publisher, it has been in great demand. Fancy-drill fans will applaud the arrival of *Exhibition Drills.*

Chief of Staff's Contemporary Reading List

ON 15 September the Army will publish a regulation defining the Contemporary Military Reading List, along with a personal letter from the Chief of Staff explaining the purposes of the program and urging participation by Army personnel. The titles listed here are deemed by the Chief of Staff required reading for basic military historical knowledge and understanding acquired as part of the professional preparation of Army leaders. This is the first of an annual list that will be prepared by the Army War College, and is being distributed to Army libraries.

The Century of Total War, by Raymond Aron, 1954.

Military Heritage of America, by Cols. R. Ernest & T. N. Dupuy, 1956.

How Russia is Ruled, by Merle Fainsod, 1953.

A Hundred Years of War, by Capt. Cyril Falls, 1953.

Power and Policy, by Thomas K. Finletter, 1954.

Soviet Strategy in the Nuclear Age, by Raymond L. Garthoff, 1958.

Panzer Leader, by Gen. Heinz Guderian, 1952.

Combat Actions in Korea, by Maj. Russell A. Gugeler, 1954.

Inside Russia Today, John Gunther, 1958.

The Soldier and the State, by Samuel P. Huntington, 1957.

Military Policy and National Security, edited by William W. Kaufman, 1956.

Realities of American Foreign Policy, by George F. Kennan, 1954.

The Direction of War, by Air Marshal Edward J. Kingston-McCloughry, 1955.

Forging a New Sword, by Col. William R. Kintner, Col. Joseph I. Coffey, and Raymond J. Albright, 1958.

Nuclear Weapons and Foreign Policy, by Henry A. Kissinger, 1957.

The Potential of Nations, by Klaus E. Knorr, 1956.

The Middle East in World Affairs, by George Lenczowski, 1956.

Rockets, Missiles and Space Travel, by Willy Ley, 1957.

The Soviet Army, edited by Capt. B. H. Liddell Hart, 1956.

Economics of National Security, by Brig. Gen. George A. Lincoln and Associates, 1954.

Psychological Warfare, by Lt. Col. Paul M. A. Linebarger, 1955.

Soldiers and Scholars, by John W. Masland and Laurence I. Radway, 1957.

Atomic Weapons and Armies, by Col. Ferdinand O. Miksche, 1955.

Arms and Men, by Walter Millis, 1956.

Limited War, by Robert E. Osgood, 1957.

Guided Missiles in War and Peace, by Maj. Nels A. Parson, Jr., 1956.

Government and Science, by Don K. Price, 1954.

The Influence of Force in Foreign Relations, by Capt. (USN) W. D. Puleston, 1951.

American Strategy in the Atomic Age, by Col. George C. Reinhardt, 1955.

Soldier, by Gen. Matthew B. Ridgway and Harold H. Martin, 1956.

Strategy for the West, by Air Marshal John C. Slessor, 1954.

American Defense and National Security, by Timothy W. Stanley, 1956.

New Developments in Army Weapons, Tactics, Organization and Equipment, by Capt. Marvin L. Worley, Jr., 1958.

As They See Us

YONDER ONE WORLD
By Frank Moraes
The Macmillan Company, 1958
209 Pages; $3.75

Reviewed by
ROBERT N. WALKER, Ph.D., *who is an adjunct professor at The American University and consultant to the Office of Special Warfare.*

The Scottish bard's plea, "Oh wad some power the giftie gie us to see oursels as ithers see us!" is in part met by Frank Moraes in *Yonder One World,* a study of Asia and the West. Every writer interprets his impressions in terms of his unique personal experiential background. Through his Indian eyes, and with remarkable insight, Mr. Moraes gives a picture of the contemporary world and America's role in it. To an already established reputation as a first-class writer (his *Jawaharlal Nehru: A Biography* has been given highest ratings by critics), Mr. Moraes now adds further luster by his present book.

The author writes from a broad background of training, experience in newspaper work, and travel in both the free world and Soviet-bloc areas. For many years he had almost unequalled opportunity to observe Nehru's career, his struggle for Indian independence, and his rise to prominence in international affairs. He has been able to interview most of the world's great leaders and his candid appraisal of each is unique and valuable.

Refreshing is his treatment of the impact of communism on Asia and his prediction of communism's eclipse by democratic socialism in the underdeveloped areas of the East. He compares conditions, ideas, and traditions of the key countries of Asia and the West, with particular attention to Great Britain, the United States, and the West German Republic. In his extensive travels he has encountered paradoxes, conflicts, and contradictions which at once unite and divide East and West. He points out that science rather than religion is the chief factor in the cleavage, and shows that economically and technologically the problems of the West are far different from those of the East: the West must save labor, the East absorb it.

And finally as epilogue: "The advantage which the Reds wield over Asia's hungry masses is that the strength of Communism lies in its promises. The strength of democracy is in its performances. Only those who have truly savoured the dignity of democratic living and known the value of individual freedom are willing to defend it with their lives. America has. So has Britain, and the countries of Western Europe. But Asia has still to savour it, and will only defend it when, adopting and working it, she at last knows it."

ASSOCIATION OF THE U. S. ARMY

AIMS AND OBJECTIVES

The Association of the U. S. Army shall be an organization wherein all who are in accord with its objectives may join in the exchange of ideas and information on military matters, and in fostering, supporting, and advocating the legitimate and proper role of the Army of the United States and of all its elements, branches, and components in providing for and assuring the Nation's military security.

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REPORT FROM YOUR AUSA CP

Resolutions to be acted upon at the Annual Meeting in October must be submitted to Association Headquarters by 15 September 1958. This year resolutions from the floor will not be acted upon. Chapters or individual members may submit proposed resolutions to receive the consideration of the Resolutions Committee.

One hundred per cent of the officers and noncommissioned officers of Battery D, 71st Missile Battalion (19th Artillery Group) located in the vicinity of Washington, D. C., recently became members of the Association through the efforts of the George Washington Chapter. Congratulations to that unit on such a fine expression of interest in the activities of the Association!

The following message was received from General I. D. White, Commanding U. S. Army Forces in the Pacific:

"It gives me a great deal of pleasure to extend personal congratulations along with those of the personnel of the U. S. Army, Pacific, on the eighth anniversary of the Association of the United States Army.

"The accomplishments of the Association in support of the Army are widely recognized. . . . The clear progress that has been made during the past two years in bringing prominent and influential civilians into the Association is very gratifying; its importance cannot be too strongly emphasized.

"The effective partnership of military and civilian in the Association has already shown marked results—the doubling of membership in nine months; successful support of the recently enacted military pay bills; and the excellent progress made on the program to disseminate information and ideas, stimulate *esprit de corps,* and promote individual and unit pride in the United States Army. All of these accomplishments and objectives confirm the value of the Association to its membership and to our country.

"Best wishes for continued success."

WALTER L. WEIBLE
Lt. Gen., USA, Retd.
Executive Vice President

CHAPTERS

DETROIT CHAPTER—Col. Gervais W. Trichel, President of Amplex Division, Chrysler Corporation, was chosen President of the Chapter in an election held in late July. Col. Trichel heads the first group of permanent officers elected by the Chapter; provisional officers directed the Chapter up to this time. Others elected include Harold R. Boyer, Carl F. Bachle, Don Pippel, Herbert R. White, Fred W. Parker, Robert Bruce, William Travis and Harold J. Miller.

EL PASO CHAPTER—Meeting 13 May elected new officers. Chapter was host to the membership at a party after the meeting.

FORT LEE CHAPTER—Chapter held annual "Family Day" at Horkan's Point, Lake Jordan, 19 July. Fishing exhibit, barbecue chicken dinner, and cartoons for the children were among the features of the program.

HENRY LEAVENWORTH CHAPTER—Chapter sponsored the ground-breaking ceremony for the Nike-Hercules defenses of the greater Kansas City area. Governor Docking, Mr. Charles S. Stevenson, Civilian Aide to the Secretary of the Army, and Mr. Harold E. Purdy, president of the Chapter, were present for the ceremony.

MARNE CHAPTER, APO 36, New York, N. Y.—Three committee chairmen were appointed at meeting 30 June. Col. David C. Lewis, CO, Division Artillery, is chairman of the Executive Matters Committee. Lt. Col. Joseph W. Sullivan, Staff JA, heads Program and Activities Committee. Maj. Arch E. Roberts, 3d Division Information Officer, will be Chairman of the Public Relations Committee. Colonel Lewis is President of the Chapter.

PALM BEACH CHAPTER—Meeting 26 February addressed by Col. George P. Welch on AUSA's background and plans. A roast-beef dinner added to the festivities of the Charter meeting on 22 April. At this meeting Lt. Col. Leonard McNutt spoke on preparedness and economy; Col. McNutt is Executive Officer of the South Florida sub-district. Meeting 25 June elected permanent officers, and viewed film on the *Pentomic Army*.

SAN BERNARDINO COUNTY CHAPTER—First Annual Meeting held 14 June; elected officers and began planning for attendance at AUSA's 1958 Annual Meeting.

SAN FRANCISCO CHAPTER—Annual Civilian Personnel Meeting held 25 June at U. S. Army Transportation Terminal Command, at invitation of Brig. Gen. Charles F. Tank, CG. Mr. William McNabb, Chapter President, outlined AUSA's aims and objectives, and invited his audience to become members.

WASHINGTON STATE CHAPTER NUMBER 1—More than 170 members and guests attended a combination business meeting, buffet dinner and social hour at the Fort Lewis Officers Club, 13 July. Maj. Gen. Patrick J. Ryan, Chief of Chaplains, U. S. Army, spoke on the duties of the chaplain. Brig. Gen. John H. McGee spoke on some recent Chapter activities, including presentation of a Certificate of Appreciation on behalf of National AUSA to Mr. Charles D. Finucane, former Under Secretary of the Army. Mr. Ben Hanson, Mayor of Tacoma, spoke on the subject of citizen support of AUSA. Judge Mathew W. Hill, Chief Justice, State of Washington Supreme Court, gave a stirring address on the duties and responsibilities of citizenship.

WILLIAM PENN CHAPTER—Maj. Gen. A. J. Drexel Biddle, President of AUSA, spoke 8 July to an audience of more than three hundred on AUSA and its aims and objectives. Chapter has been exceptionally active on the Army manpower question.

WOLTERS CHAPTER—Tom Creighton, President of Wolters Chapter, addressed a picnic and meeting held by the Central Texas-Fort Hood Chapter, 25 July.

ROTC COMPANY

ST. NORBERT COLLEGE COMPANY, West De Pere, Wisc.—Cadet Rene J. Emond, 2d Lt. of the Company, was appointed to take care of all details necessary for the Company getting a good start for the 1958-59 school year, and to act as chairman of the first few meetings to organize renewal of memberships, induction of new members, and election of new officers.

AUSA MEDAL AWARDS

THROUGH 30 JUNE 1958

ROTC Cadets

Alabama Polytechnic Institute: James B. Askew; **Arizona State College:** Edward Toporek; **Boston College:** Louis W. Sheedy, Paul R. Cote; **Bowling Green State University:** Dean M. Matheney, Davis W. Humbert; **Bucknell University:** Raymond Allen Bures; **Carnegie Institute of Technology:** William T. Osborne, Ivan E. Sutherland, Robert H. Marik, John W. Wesner; **The Citadel:** E. M. Blight, Jr., W. D. Eady.

Clarkson College of Technology: William C. Miller, Jr., David Miller; **Clemson Agricultural College:** Roy H. Herron, Jerry T. Steele, Oron G. Trotter, Jr. **Colorado School of Mines:** Larry R. Faulkner; **Colorado State University:** Richard D. Orcutt, George C. Stroh; **Cornell University:** Douglas D. Innes; **Creighton University:** Stephen P. Kralik.

Dartmouth College: Michael Bennet Solzman; **Davidson College:** William L. Walker, III; **Dickinson College:** T. J. DeMarino, W. M. Otto; **East Tennessee State College:** Harold C. Skaggs; **Florence State College:** David Claude Ammons; **Florida A&M University:** Harvey P. Jefferson; **Florida Southern College:** Richard C. Fulford, David A. Doster; **Fordham University:** Nicholas D. Barreca.

Furman University: Lewis W. Tollison, Michael E. Hammett; **Georgetown University:** Thomas H. Stahel, George F. Landegger; **Georgia Institute of Technology:** Raymond W. Pilgrim, Ramon E. Carden, Thomas G. Kollie; **Hampton Institute:** Charles E. House; **Harvard University:** Michael A. Boyd, John J. Speidel; **Henderson State Teachers College:** Wray W. Boyd, Jr.

Hofstra College: Spencer W. Brink; **Idaho State College:** William J. Demott, Ronald J. Pugmire; **Iowa State College:** Larry K. Fox, Jack E. Rossman, William L. Underkofler, William J. Meek,

WASHINGTON, D. C. Capt. John H. Van Santen (left), CO, Battery D, 71st Missile Battalion, and First Sgt. Emmanuel V. Buenafe (right) present their battery's 100 per cent enrollment in AUSA to Mr. Henry Handler, Secretary of George Washington Chapter.

FRANKFORD ARSENAL, PENNA. Maj. Gen. A. J. Drexel Biddle (second from right), was principal speaker at William Penn Chapter's meeting on 8 July. Others in picture are, left to right: C. C. Fawcett, Chapter President; Arthur C. Kaufman, Civilian Aide to Secretary of the Army; Maj. Gen. Webster Anderson, CG, Philadelphia QM Depot; Brig. Gen. James A. Richardson, III, CG, Frankford Arsenal.

Richard A. Marr, Gary L. Kline; **Iowa State University:** Donald R. Harris, Richard J. Sundberg; **John Carroll University:** George W. Makra, Jr., Dennis P. Fagan.

The Johns Hopkins University: Gilbert F. Decker, Martin A. Prince; **Kansas State Teachers College:** James A. Manning, Dick L. Deonier; **Kemper Military School:** Ira M. Click, Maurice R. Richardson; **Loyola University (New Orleans):** James H. Van Hoof, Ferdinand J. Kleppner; **Marion Institute:** John A. Nicholls, III.

Marquette University: Patrick J. Kelly; **McNeese State College:** Norman W. Alston, Vern W. Stutsman; **Mercer University:** Spencer B. King, III; **Michigan College of Mining & Technology:** Joseph H. Smith; **Michigan State University:** David G. Epstein; **Middlebury College:** Edwin L. McDowell; **Midwestern University:** Neil B. Lang.

Mississippi Southern College: James K. Travis, Jr., Harve J. Hagerty; **Mississippi State College:** Theodore H. Kendall, III, Robert K. Jayne, Jr.; **Missouri School of Mines & Metallurgy:** Kenneth R. Schultz, William Fesler, Jr.; **Montana State College:** Gerald Wheeler, David M. Munroe; **Montana State University:** Duane C. Gilkey.

Morgan State College: Donald R. Mason, William L. Beck; **Murray State College:** Lindsay M. Freeman; **New Mexico A&M College:** Alvin D. Thomas, Lawrence R. Marker; **New York University:** Andrew K. Frank; **North Carolina State College:** Frank M. Alley, Jr.; **North Georgia College:** Jerry B. Dye, William E. Smart; **Northeastern University:** William P. Hurley, Jr.

Northwestern State College of Louisiana: Gerald J. Schorr, Truman Maynard; **Oak Ridge Military Institute:** Timothy B. Cole; **Ohio State University:** Robert A. Liggett, James A. Jordan, Jr.; **Ohio University:** Lynn A. Blickenstaff; **Oklahoma State University:** Ralph W. Taylor, James R. Wilson; **Oregon State College:** David L. Halse, Richard S. Riddle, Kenneth K. Keudell, John L. Wright, Harley B. Blankenship, Dennis F. Todd, Malcolm E. Heitzhausen, John A. Welch.

Ouachita Baptist College: Harold D. Johnson; **Pennsylvania State University:** Robert W. Parker, Thomas G. Hart; **Polytechnic Institute of Brooklyn:** Frederick C. Breslin, Jerome Pazer; **Pomona College (Claremont Men's College):** Kristoffer Kristofferson; **Pratt Institute:** David G. Hanrahan, John J. Lagana; **Providence College:** Francis B. Honan.

Puerto Rico A&M College: Clemente L. Ramfrez, Edward Pacheco; **Rensselaer Polytechnic Institute:** Michael J. Friedman; **Rose Polytechnic Institute:** Dan G. Mook; **St. Mary's University (San Antonio):** Clarence A. Scheel, Sylvan J. Mangold; **St. Norbert College:** Neal T. Jansen, Thomas C. Nytes; **Sam Houston State Teachers College:** Gilbert N. Key.

Seattle University: William J. Wall; **South Dakota School of Mines & Technology:** Philip F. Dickson, Edward R. Tegland; **South Dakota State College:** Charles O. Danielson, Larry D. Henderson; **Southern University and A&M College:** Clyde R. Bennett; **Spring Hill College:** Rory W. Dunne; **Stanford University:** James L. Sobrieski; **State Teachers College (Jacksonville, Ala.):** Wilbert J. Dishner, Jr., David R. Belcher.

Syracuse University: John A. DeVeaux, Donald L. Adams; **Tennessee Polytechnic Institute:** Wallace A. Kell; **Texas Western College:** James F. Bettle; **University of Arizona:** Don E. Lovell; **University of California (Davis Campus):** Frederick H. Borneman; **University of California (Santa Barbara College):** Donald R. Trauther.

University of Chattanooga: James W. Gaither; **University of Cincinnati:** Donald A. Grider; **University of Colorado:** Roger M. Zimmerman, Dale D. DeFord; **University of Connecticut:** William J. Marhefsky; **University of Dayton:** William T. Caiaccio; **University of Denver:** Ronald C. Hill; **University of Georgia:** Duane E. Black, Charles R. Williams.

University of Kansas: Chester A. Boterf, Thomas J. Kennedy; **University of Kentucky:** John J. Watson; **University of Maine:** Richard E. Coady; **University of Minnesota:** Jack A. Fecht, Lloyd F. Gracey, Jr.; **University of Mississippi:** John B. Barrack; **University of Missouri:** Kennard L. Fenton, Bernard N. Frank, Ralph W. Hochgrebe; **University of Nebraska:** David L. Linn.

University of New Hampshire: Malcolm J. Zwolinski, Robert P. Greene; **University of North Dakota:** Ruldolph J. Hausauer, Bernard P. LeClerc; **University of Oklahoma:** Robert K. Bader, Everett Sanmann; **University of Oregon:** John A. Robinson, David R. Beach; **University of Puerto Rico:** Manuel Gonzalez-Gierbolini, Hector Rivere-Muñoz.

University of Rhode Island: Robert L. Mosher; **University of San Francisco:** William L. Ivey, David N. Lellevand, Jr.; **University of Santa Clara:** Robert L. Ward, Nicholas J. Livak; **University of Scranton:** Stephen G. Zajac; **University of South Dakota:** John E. Curnow, John B. McCain; **University of Texas:** Robert F. Loughridge.

University of Toledo: Darryl R. Hawn, Robert E. Butler; **University of Vermont:** Ruben A. Lamarque, Jr.; **University of Utah:** Hugh W. Pinnock, John M. Covey; **University of Wichita:** Charles W. Rawlings; **University of Wisconsin:** Kenneth J. Wittenberg, David W. Kent; **Utah State University:** Lynn H. Stevens, Robert B. Gibbons.

Virginia Military Institute: Charles E. Edgar, III, Henry H. H. Clarke, Donald W. Cuthrell, Jr.; **Virgina State College:** Herman L. Price; **Wake Forest College:** Rowland H. Thomas, Lawrence E. Brooks; **Washington & Jefferson College:** Harry W. Fuchs, Richard W. Haring; **Wentworth Military Academy:** Laurence R. Letson.

West Virginia University: James C. Summers; **Western Kentucky State College:** Ronnie L. Jones; **Yale University:** Robert H. M. Ferguson.

Service Schools

U. S. Army Engineer School: 2d Lts. John S. Priedenian, Lee D. Webster, James R. Forsyth; **U. S. Army Security Agency School:** Capts. Chalmers R. Custer and Richard H. Koenig, 1st Lts. Jack H. Jacobus, James E. DeRocher and Robert A. Highbarger.

CAMP LEROY JOHNSON. Congressman F. Edward Hebert (left) is presented a chafing dish by Maj. Gen. Norman H. Vissering, CG, USATTC, Gulf, in behalf of New Orleans Chapter on 11 May, while unidentified aide assists. Chapter's citation was for "outstanding leadership on the House Armed Services Committee."

DETROIT, MICH. Newly elected officers of Detroit Chapter for 1958-59, left to right: Harold J. Miller, Executive Secretary; John Coombe, member of Advisory Committee; Gervais W. Trichel, President; William Travis, Treasurer; Fred W. Parker, Jr., Finance Chairman; Carl F. Bachle, Second Vice President; Herbert R. White, Fourth Vice President.

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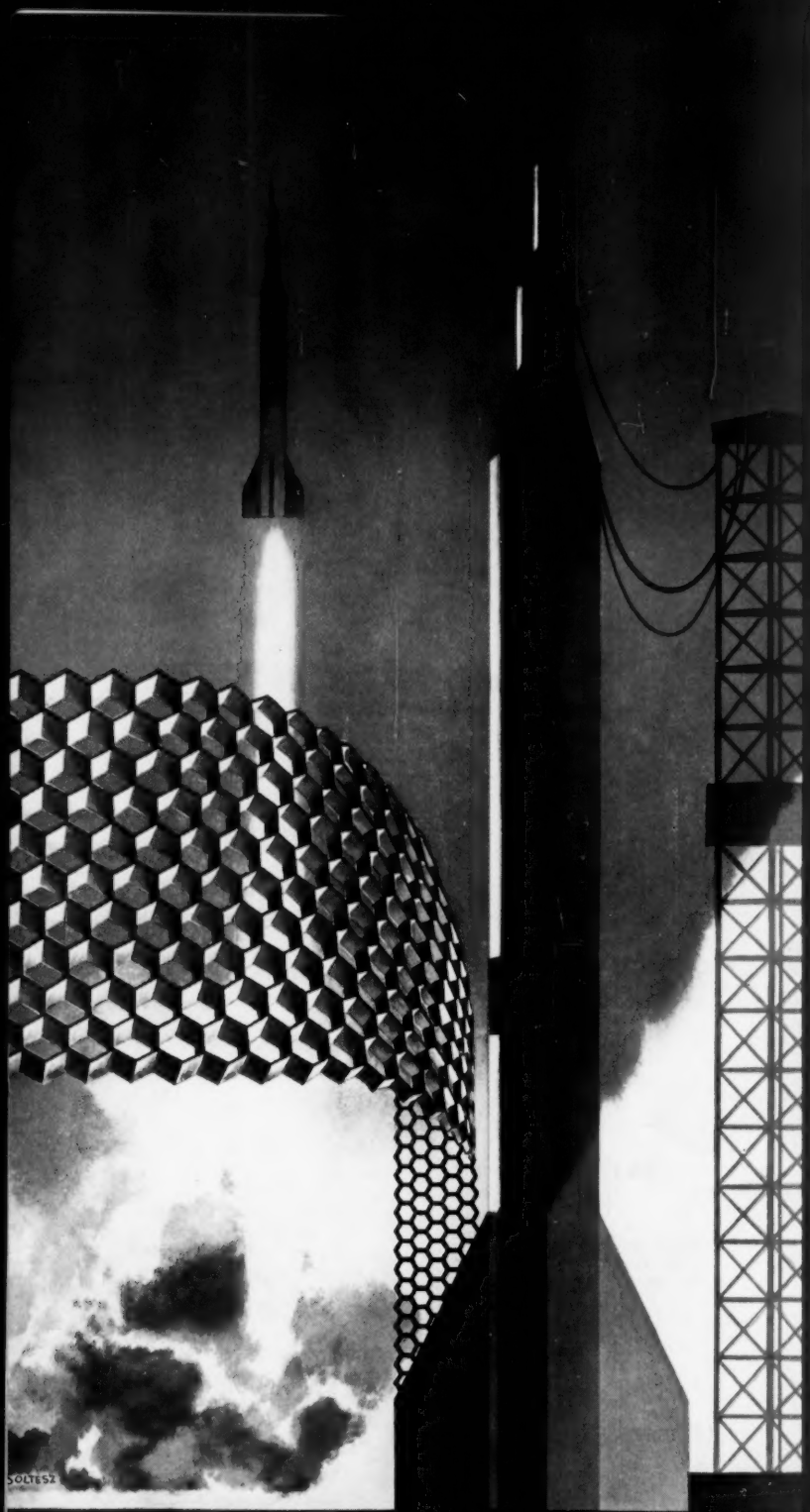

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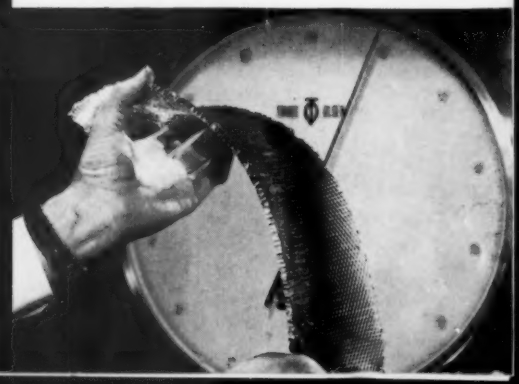
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